

COCHRANE MOOSE RIVER MANAGEMENT UNIT

INDEPENDENT FOREST AUDIT

2000-2005



Prepared by:

**Arbex Forest Resource Consultants Ltd.
Oxford Mills, Ontario
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1.0. Executive Summary

This report presents the findings of an Independent Forest Audit (IFA) conducted on the Cochrane Management Unit (CMU) and the Moose River Management Unit (MRMU) for the 2000 - 2003 period and the Cochrane Moose River Forest Unit (CMRMU) for the 2003 - 2005 period. The audit period was from April 1st, 2000 to March 31st, 2005. The audit conformed to the requirements of the 2005 Independent Forest Audit and Process Protocol (IFAPP) prepared by the Ontario Ministry of Natural Resources (OMNR).

The CMRMU is a Crown Management Unit managed by the Crown with the same forest management responsibilities as a Sustainable Forest Licence (SFL). This unit is characterized by extensive service agreements with industry, the amalgamation of two former crown management units and long term unsuccessful attempts to establish a SFL. Specific forest management responsibilities (e.g. forest management planning, silviculture) were contracted to Tembec Industries Inc. under service agreements. The Unit has a number of traditional Forest Resource License holders. First Nation companies conduct a significant portion of the harvesting on the unit under contract to Tembec.

The Independent Forest Audit process is based on a detailed assessment of eight broad principles. Each principle has a series of specific criteria which are examined to determine whether or not the management of the Unit had been in compliance with the legislation, regulations, and policies that were in effect during the audit term.

The auditor concludes that the management performance of the OMNR on the CMRMU only partially met the requirements of the 1996 Forest Management Planning Manual and/or the Crown Forest Sustainability Act (CFSA).

This finding is based on the following major shortcomings:

- The OMNR strategy to deliver forest management through service agreements resulted in a confusing management and record maintenance regime.
- OMNR has not adequately monitored the delivery of forest management activities or reports by its service provider.
- Response to the 1995 - 2000 IFA audit recommendations was two years late.
- Contrary to reported information in the 2000 IFA Audit Action Plans and Status Reports, some remedial actions have not been fully implemented.
- OMNR compliance monitoring was inadequate.

- OMNR did not have sufficient forestry staff to meet its administrative obligations on the CMRMU.
- Information in Annual Reports during the 2000 - 2005 audit period did not meet FMPM requirements.
- RPFOs for the 1998 – 2003 plan term were not prepared.
- The Cochrane LCC was not active for 8 months and a LCC representative did not fully participate on the forest management planning team.

The relatively low level of harvest activity, the general adherence of field operations to SGRs and guidelines, and the abundance of natural regeneration following harvesting observed during the audit period led the auditor to conclude that forest sustainability is not jeopardized in the short term. However, serious issues related to the delivery and administration of forest management on the CMRMU could have implications for long term forest sustainability. Timely and accurate data is essential to properly assess the effectiveness of forest management activities and develop sustainable plans.

The audit finds that the OMNR does not have the capacity to monitor and administer its service agreements. As a result, a number of FMPM requirements for reporting and compliance monitoring were not fully met. The OMNR did not fully meet its legal obligations and did not fully conform to the legislation, regulations and policies in effect during the audit period.

The auditor recommends that the OMNR negotiate a SFL or accept its full management responsibility for the Unit, supported with adequate staff and resources, to effectively manage and meet all its legal obligations. The auditor provides the following recommendation:

Recommendation:

The Minister of Natural Resources should establish a 24 month deadline for the negotiation of an SFL on the Cochrane Moose River Management Unit. At that time, if an SFL has not been negotiated, the Minister should;

- 1) Amalgamate the CMRMU with an adjacent SFL or SFLs,
- or
- 2) Provide sufficient staff and resources to enable the Cochrane District to effectively meet all forest manager obligations on the CMRMU.

2.0. Introduction

This report presents the results of the Independent Forest Audit of the Cochrane Moose River Management Unit (CMRMU) conducted by Arbex Forest Resource Consultants Ltd. for the period of April 1st, 2000 to March 31st, 2005.

The CMRMU¹ is a Crown Management Unit managed by the Ontario Ministry of Natural Resources (OMNR) Cochrane District, with the same responsibilities as a Sustainable Forest Licence (SFL). This Unit is characterized by extensive service agreements with industry, the amalgamation of two former Crown Management Units and long term unsuccessful attempts to establish an SFL. Specific forest management responsibilities (e.g. forest management planning and silviculture) were contracted to Tembec Industries Inc. Tembec sub-contracted some responsibilities to Norbord. The 1998 MRMU FMP preparation was contracted to Malette Inc. Malette was purchased by Tembec during the preparation of the FMP. The Unit also has a number of independent Forest Resource License (FRL) holders. First Nation companies conduct a significant portion of the harvesting and renewal on the Unit under contract to Tembec.

2.1. Audit Process

Ontario legislation requires that Forest Management Units be audited every five years by an Independent Auditor. The audit applies to the OMNR and all licencees (primary and overlapping) on the Forest Management Unit. The audit considers the compliance aspect of forest management planning by reviewing the management plan in relation to specific planning manual requirements in place at the time of plan approval, including a review of actual operations, and required monitoring and reporting. The audit also considers the SFL's specific contractual compliance relative to its licence agreement. The effectiveness of forest management activities is examined based on planned vs. actual results as verified through record examination and field sampling. The audit reviews whether actual results in the field are comparable with planned results, and determines if they are accurately reported.

The IFAPP, developed by the OMNR, provides a comprehensive and consistent method of evaluating forest management activities on Crown land. The IFAPP contains approximately 400 individual procedures that direct the independent auditor to collect, analyze, interpret and document appropriate information to determine if various criteria have been met. The results of the evaluation of

¹ The CMU and the MRMU had approved Forest Management Plans for the 1998 – 2003 period. The CMRMU was created in 2003 with the amalgamation of the Cochrane Management Unit (CMU) and the Moose River Management Unit (MRMU) and has an approved FMP for the 2003 – 2008 period.

evidence against the criteria determine the audit findings. Those findings are then analyzed and aggregated to determine the outcome of the audit.

The IFAPP states that the purpose of the independent forest audit is to assess:

- The compliance of forest management planning activities with the Forest Management Planning Manual (FMPM) and the Crown Forest Sustainability Act (CFSA).
- The compliance of forest management activities with the CFSA and with the forest management plans, the manuals approved under the CFSA and applicable guides.
- The effectiveness of forest management activities in meeting the forest management objectives set out in the forest management plan, as measured in relation to the criteria established for the audit.
- The relative success of forest management activities carried out compared to those that were planned.
- The effectiveness of any action plans implemented to remedy shortcomings revealed by a previous audit.
- The licensee's compliance with the terms and conditions of the forest resources licence.

The audit process is based on a detailed assessment of eight IFAPP principles:

- commitment,
- public participation,
- forest management planning,
- plan implementation,
- system support,
- monitoring,
- achievement of management objectives and sustainability,
- contractual obligations.

Each IFAPP principle has a series of specific criteria which, if met, will result in the achievement of that principle. The specific criteria are based on applicable legislation, manuals, and guidelines related to forest management contained in the 2005 IFAPP.

The audit was conducted by Arbex Forest Resource Consultants Ltd. The audit team consisted of three professional foresters and three specialists with expertise in fish and wildlife management, forest management planning, land use planning, public consultation, and compliance. Each team member was assigned specific duties and responsibilities. A list of audit team members and their qualifications is presented in Appendix B.

The CMRMU IFA process consisted of the following elements:

Audit Plan: An audit plan describing the schedule of audit activities, audit team members, audit participants and the auditing methods was prepared and submitted to the auditees (OMNR and contracted forest industry operators). The Cochrane Local Citizens Committee (LCC) did not have a Chairperson at the time of the audit so a representative member, selected by the LCC, was sent a copy of the audit plan.

Public Notices: Notices describing the audit process, soliciting input and providing the Arbex contact co-ordinates were distributed using:

- Local newspapers.
- Individual letters sent to First Nation Chiefs and LCC members.
- Letters sent to a randomly selected thirty-five percent of the individuals on the Cochrane Moose River Management Unit (CMRMU) Forest Management Plan (FMP) mailing lists.
- Telephone contacts, interviews, and meetings conducted with representative stakeholders.

Field Site Selection: A pre-audit meeting was held with the OMNR, representatives from companies working on the CMRMU and the LCC representative on July 28th to review the audit plan. The auditor spent an additional day (July 29th) with involved company and OMNR staff selecting specific field sites to be inspected on the Forest. Those selected sites provided a representative sample of forest management activities conducted during the audit period.

Pre-audit Document Review and Interviews: The auditor reviewed all planning materials, communications, maps, data and other related documents associated with the development of the 1998 - 2003 FMPs for the Cochrane MU, the Moose River MU, and the 2003 - 2008 FMP for the CMRMU. The three FMPs and all forest management activities on the Unit during the 2000 - 2005 audit period were reviewed. Telephone interviews and e-mail exchanges were conducted with representative stakeholders.

Site Audit: The auditor spent five days on the CMRMU (August 29th – September 2nd) and conducted site inspections of selected forest management activities. Key company and OMNR staff and stakeholders were interviewed, documents and records were reviewed, and audit site visits conducted. Audit site visits represented approximately 20 percent of the forest management operations that had occurred on the unit over the five-year audit period. Inspected sites were accessed by road or by helicopter. Table 1 presents the sampling intensity by activity. The site samples were stratified to ensure representation of silvicultural activity, season of operation, contractors, year of operation, and Areas of Concern (AOC). The auditor also sampled work listed in the "Forest Renewal and Maintenance Agreement, Specified Procedures Report (Draft)" to compare invoiced silvicultural work with actual field activities.

Field sampling included both site-specific information and landscape-scale examinations made from aerial observations. Individual sites were selected to represent a primary activity (e.g. harvesting, site preparation, chemical tending); however, all associated activities at the site were assessed at the same time, allowing the auditor to augment the planned sampling intensity. The audit team traveled approximately 1,400 kilometers of primary, secondary, and tertiary roads on the unit. During this travel, road construction, maintenance and water crossings were observed. During travel between inspection sites, the auditor observed additional AOCs and management practices.

A large percentage of water crossings on the CMRMU were constructed and removed during winter operations. Consequently, the auditor was unable to determine a total number for these types of crossings. Records were available for "all season" bridges and culverts; these are identified in Table 1. During the field audit, the auditor did inspect numerous winter crossings to determine that construction and removal met required standards.

TABLE 1. FIELD SAMPLING INTENSITY ON THE COCHRANE MOOSE RIVER MU.

Activity	Total Area (Ha) / Number (2000-2005)	Area (Ha) / Number Sampled	Percent ² Sampled
Harvest	14,813	4,566	30
Renewal	12,654	2,045	16
Mechanical Site Preparation	298	60	20
Aerial Spray	2,859	577	20
Slash Piling	2,405	481	20
Slash Pile Burning	1,880	444	18
Direct Seeding	534	106	20
Special Purpose Account Sites	7,609	3,120	54
Free-to-Grow	26,297	6,500	25
Areas of Concern ³	N/A ⁴	900	N/A
Water Crossings	150 crossings	30 crossings	20

Report: The audit report includes a description of the audit process and a discussion of findings and conclusions. Recommendations and suggestions are made and best practices are noted. Recommendations are directed at deficiencies in forest management and associated processes that require corrective action. Recommendations must be dealt with in a formal Action Plan developed by the OMNR within 2 months of receipt of the final audit report. Suggestions are directed at less serious issues and simply provide advice for improvement. A "best practice" highlights a management practice or level of performance that the auditor felt was exceptional.

² Percent sampled represents the location of prime audit activity. In addition to the prime audit activity all additional silvicultural, protection and construction activities on that site were also inspected. For example, a site selected primarily to audit planting activities was also inspected for associated chemical tending, culvert construction etc.

³ A significant number of AOCs on the forest are linear features (e.g. riparian areas, moose aquatic) as opposed to point features (e.g. nest sites). For this reason most of the assessment was area based and observed via helicopter.

⁴ The auditor was unable to determine total area (see footnote 3).

2.2. Forest Management Context

The CMRMU is an amalgamation of portions of the former Cochrane Management Unit (CMU) and the Moose River Management Unit (MRMU)⁵. During the audit period, forest management responsibility on the Cochrane Management Unit (CMU), the Moose River Management Unit (MRMU) and the Cochrane Moose River Management Unit (CMRMU) was held by OMNR Cochrane District. A Sustainable Forest Licence was not signed for the unit; rather, OMNR negotiated service agreements⁶ that assigned forest management responsibilities to Tembec. Tembec sub-contracted some of those responsibilities on the CMU to Norbord. The 1998 MRMU FMP preparation was contracted to Malette. Malette was purchased by Tembec during the preparation of the FMP. Tables 2 and 3 outline the division of management responsibilities on the management units.

Harvesting on the Cochrane sub-unit was undertaken by independent operators (Forest Resource Licencees (FRLs)). There were 19 FRL licencees on the unit. FRL holders were responsible for forest access for their harvest blocks.

The 1998 CMU FMP was written by the OMNR. The 1998 MRMU FMP and the 2003 CMRMU FMP were prepared by Tembec under service agreement to OMNR.

⁵ Following amalgamation, the CMU and the MRMU became known as the Cochrane sub-unit and the Moose River sub-unit.

⁶ Initial service agreements were for specific forest management functions. Later agreements (see page 47) were for a broader range of forest management activities.

TABLE 2. ASSIGNMENT OF FOREST MANAGEMENT RESPONSIBILITIES VIA SERVICE AGREEMENTS ON THE CMU AND THE MRMU 1998-2003.

Activity	Cochrane MU (1998-2003)	Moose River MU (1998-2003)
Forest Management Plan	OMNR	Malette
Annual Work Schedules	OMNR 1998-1999, 1999-2000 2000-2001 Norbord ⁷ 2001/02, 2002/03	Tembec
Annual Reports	OMNR 1998-99, 1999-00, 2000-2001 Tembec 2001- 2002, 2002-2003	Tembec
Compliance	OMNR, Tembec, Norbord	Tembec
Silviculture	OMNR	Tembec
Operations (Road construction, culverts, harvesting, etc.)	Tembec, Norbord, FRLs	Tembec

⁷ The OMNR informed the auditor that Norbord prepared the AWS for Tembec in exchange for forest management fee payments.

TABLE 3. ASSIGNMENT OF FOREST MANAGEMENT RESPONSIBILITIES WITHIN THE COCHRANE SUB-UNIT AND THE MOOSE RIVER SUB-UNIT OF THE CMRMU FOR 2003-2005.

Activity	Cochrane Sub-Unit	Moose River Sub-Unit
Licence Holders	Tembec, Norbord, FRLs	Tembec
Planning	Tembec	Tembec
Annual Work Schedules	Tembec 2003-2004, 2004-2005	Tembec 2003-2004, 2004-2005
Annual Reports	Tembec 2003-2004, 2004-2005	Tembec 2003-2004, 2004-2005
Compliance	Tembec for silviculture. Tembec and Norbord for their operating blocks. OMNR for all other Independent operators.	Tembec
Silviculture	Tembec	Tembec
Operations (Road construction, culverts, harvesting, etc.)	Independent Operators, Tembec, Norbord on their operating blocks.	Tembec

2.2.1. Map of the Management Unit

Figure 1 shows the location of the Cochrane and Moose River sub-units within the CMRMU.

Figure 1. Cochrane-Moose River Management Unit

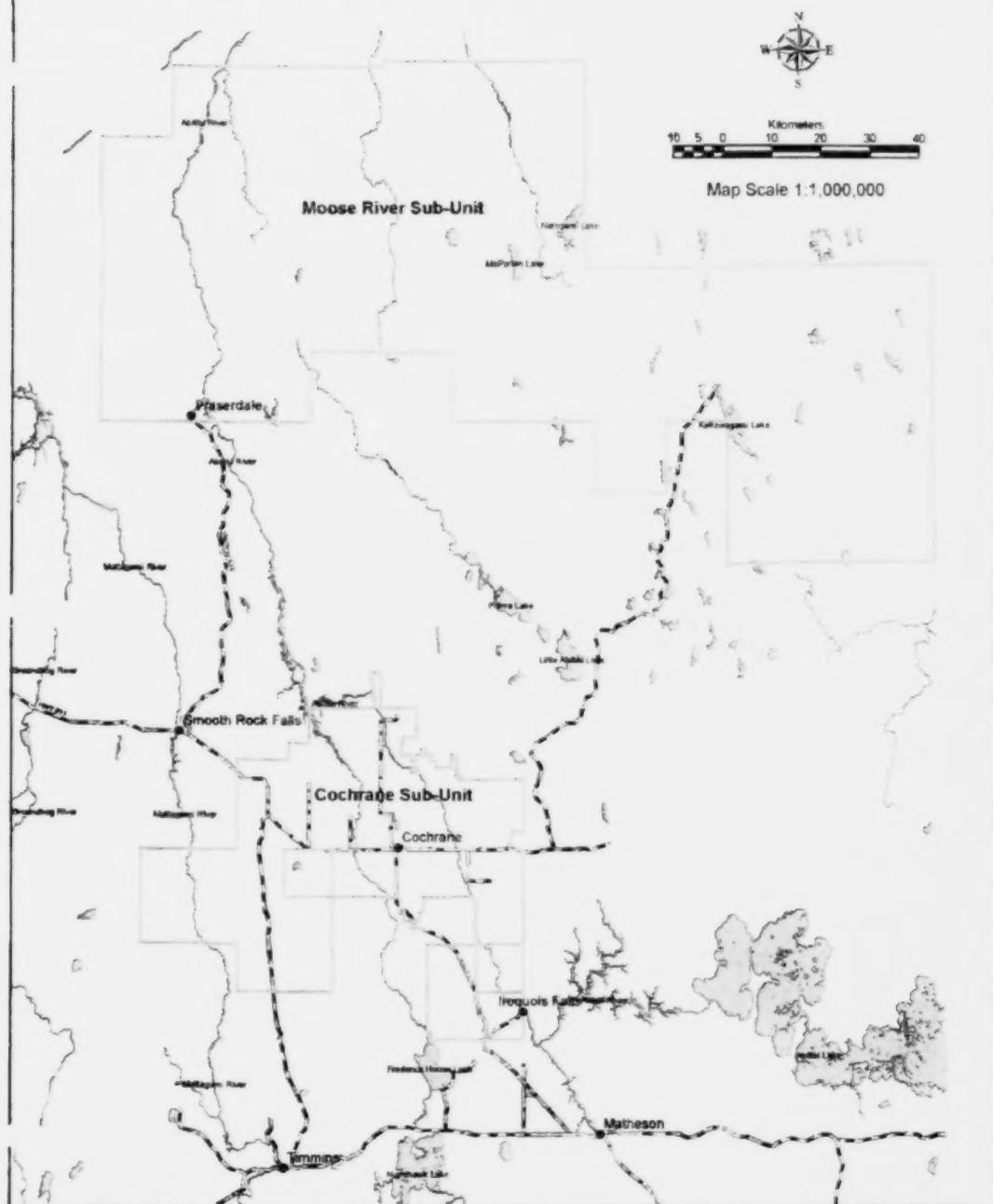


FIGURE 1. LOCATION OF THE COCHRANE AND MOOSE RIVER SUB-UNITS.

2.2.2. Description of the Unit

The CMRMU has a landbase of 1,298,257 hectares (ha). Crown managed productive forest land occupied 568,194 hectares. Barren and scattered (B&S), not satisfactorily regenerated (NSR) and depleted areas occupy approximately 14% of the productive forest land base (76,987 ha).

Figures 2 and 3 provide a summary of the managed Crown land area on each sub-unit.

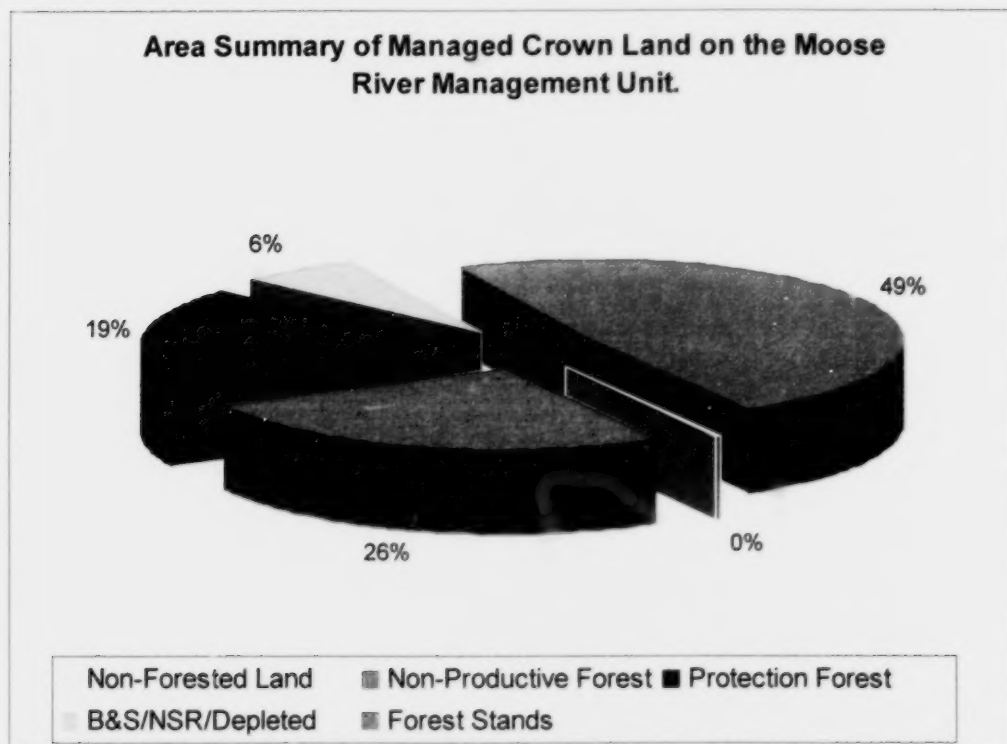


FIGURE 2. AREA SUMMARY DISTRIBUTION ON THE MOOSE RIVER SUB-UNITS.

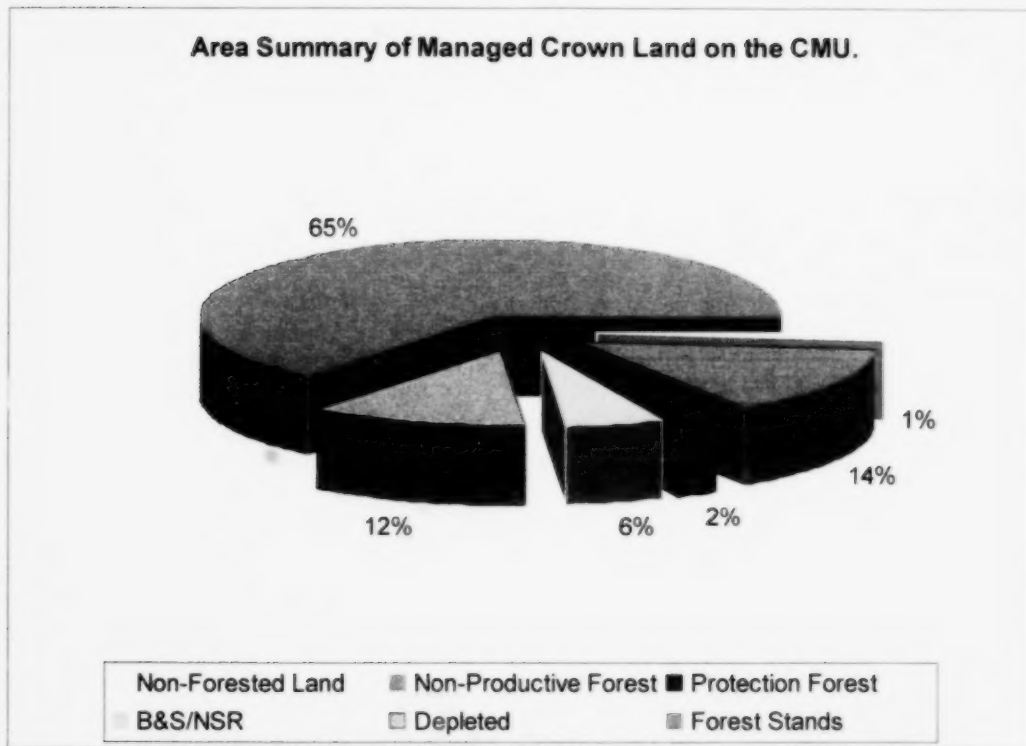


FIGURE 3. AREA SUMMARY DISTRIBUTION ON THE COCHRANE SUB-UNITS.

The northern portion of the CMRMU is referred to as the Moose River sub-unit. It borders the Quebec border to the east, the boundary of the Area of the Undertaking to the north, the Gordon Cosens Forest to the west, and the Smooth Rock Falls and Iroquois Falls Forests to the south. The southern portion of the Unit is referred to as the Cochrane sub-unit and is bordered to the north and south by the Nighthawk Forest (formerly Driftwood Forest) to the west by the Smooth Rock Falls Forest and to the east by the Iroquois Falls Forest.

Figures 4 and 5 present the proportional distribution of forest working groups by sub-unit.

Proportional Representation by Working Group on the CMU.

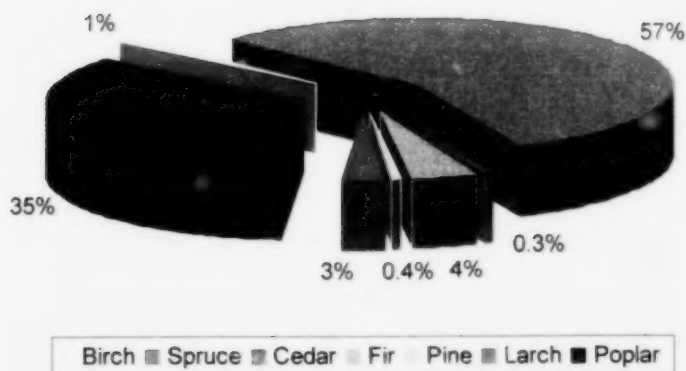


FIGURE 4. PROPORTIONAL DISTRIBUTION OF WORKING GROUPS IN THE COCHRANE SUB-UNIT.

Proportional Representation of Working Groups on the MRMU.

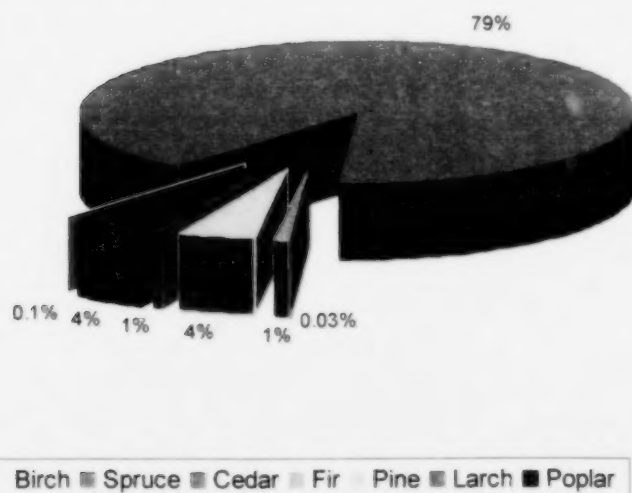


FIGURE 5. PROPORTIONAL DISTRIBUTION OF WORKING GROUPS IN THE MOOSE RIVER SUB-UNIT.

Figures 6 and 7 depict the age class distribution on the CMRMU by sub-unit. Sixty percent of the forest of the CMRMU was mature and over-mature. On the Moose River sub-unit, the age class distribution was skewed towards older age classes. In contrast, the forests of the Cochrane sub-unit were relatively young as a result of previous natural disturbances (mostly forest fires), and harvesting activities.

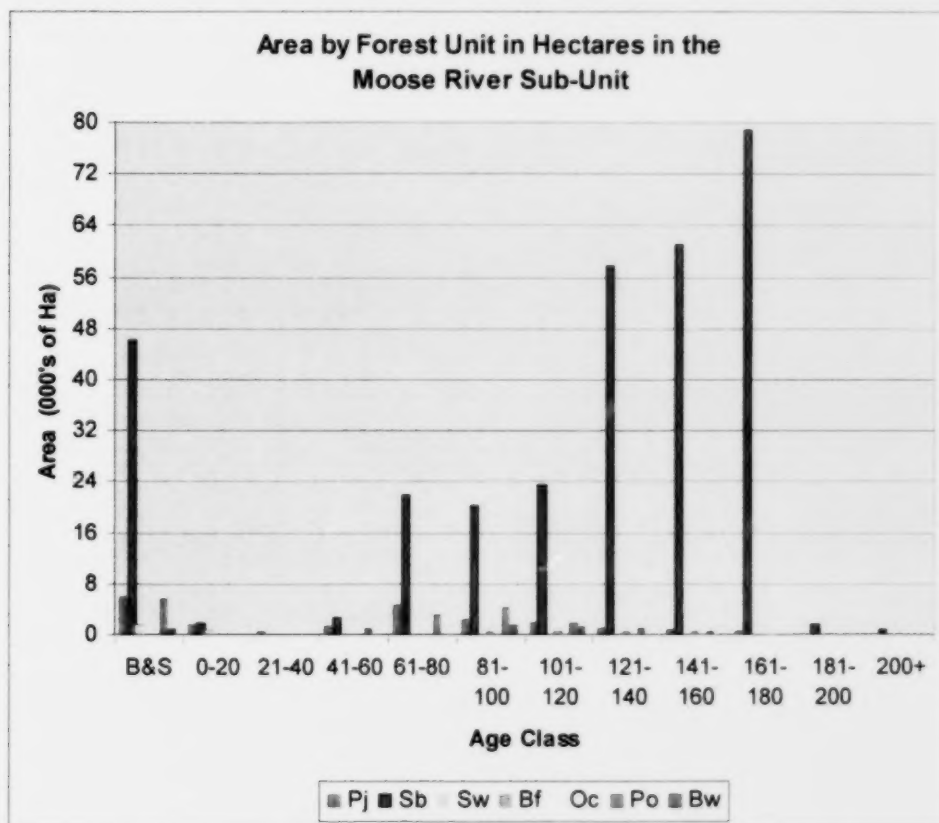


FIGURE 6. AREA BY FOREST UNIT IN THE MOOSE RIVER SUB-UNIT.

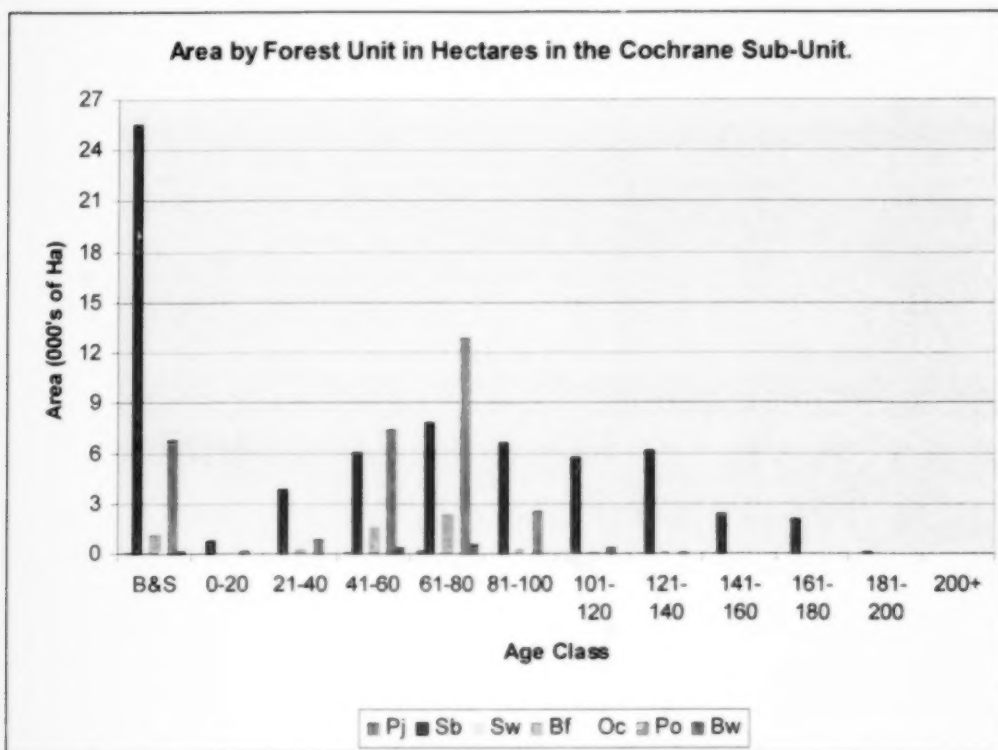


FIGURE 7. AREA BY FOREST UNIT IN THE COCHRANE SUB-UNIT.

2.2.3. Forest Management Issues

The 1998 FMPs for the CMU and the MRMU identified the following as issues as significant for forest management on the Units: access, the backlog lands of uncertain regeneration status, the reliability of volume estimates, changes to provincial guidelines (e.g. marten), declining wood supply, land use conflicts (e.g. tourism and First Nations) and changing management responsibilities (e.g. SFL negotiations).

The 2003 CMRMU FMP identified the following issues as challenges for forest management.

First Nations Traditional Use Areas

Issues with respect to planned harvesting activities on First Nations trapping areas and the backlog harvest area were identified as issues in open houses conducted with First Nations.

Caribou Interim Direction

Recognizing the presence of woodland caribou, the need to provide and maintain preferred and suitable habitat was acknowledged as a challenge for forest management, particularly on the Moose River sub-unit.

FRI Updating

Inaccuracies in the FRI data existed with respect to stand typing and the incorporation of silvicultural information.

Poplar Volume and Decline

There was a need for accurate information about the extent of poplar decline and mortality due to past forest tent caterpillar infestations.

Amalgamation of the Moose River and Cochrane Management Units.

Neither the Moose River nor Cochrane sub-units were managed under a SFL. Negotiations had been on-going for several years but had failed to produce a negotiated agreement. There was a concern that the SFL negotiations could take effort and focus away from the completion of the plan.

Growth and Yield

There was a need for growth and yield information for both sub-units.

Long Term Access Planning

The Northern Boreal Initiative to create an SFL run by First Nations north of the Area of Undertaking implied that long term access planning for the CMRMU consider access possibilities to the north.

Access through Little Abitibi Provincial Park was an issue for the development of long-term road planning strategies on the CMRMU.

Aggregates

A lack of available sources of aggregate, particularly on the Moose River sub-unit, created obstacles for access.

Road Closures

Road closures for caribou protection were expected to generate public opposition.

Economic Analysis

The LCC expressed concerns that the economic analysis used in the FMP process inadequately described the impacts on local businesses.

3.0. Summary of Audit Findings

3.1. Commitment

Corporate commitment to forest sustainability should be reflected in an organization's vision, mission and policy statements. These statements and policies provide guidance for the organization and should be reflected in day-to-day operations.

OMNR management guidelines and strategies for forest management in the CMRMU were contained in the Cochrane District Land Use Guidelines and the more recent Ontario's Living Legacy (OLL) Land Use Strategy. Further sustainable forest management directions were contained in the OMNR's Statement of Environmental Values, the *Crown Forest Sustainability Act* (1995) and supporting policies and manuals.

The Cochrane OMNR staff was familiar with the OMNR vision, mission, and policy statements. Staff was provided with required training and information. OMNR also provided training to companies and operators with respect to new forest policies and guidelines.

Tembec was responsible for the delivery of forest management activities on large portions of the Unit under service agreement to OMNR. As the primary contractor it was appropriate for the auditor to examine Tembec corporate commitment to forest management and sustainability. Tembec's Environmental Policy, Forestry Guiding Principles and Code of Practices were part of its Forever Green Program. This program promoted environmental protection, sustainable forest management and conformance with the Tembec environmental policy for forest operations. Forever Green included the implementation and maintenance of an Environmental Management System (EMS) that was certified in conformance with the ISO 14001 standard in 2001. Tembec policy documents were readily available to staff and contractors. The auditor determined employees received regular communications, directions and training with respect to corporate and local sustainable management directions and related goals. Tembec corporate direction with respect to First

Nations included the promotion of long-term and mutually beneficial relationships based on social and economic needs.

OMNR corporate direction had been to incorporate all licensed Crown land areas under the management of SFL holders. The CFSA, the FMPM and the Forest Information Manual (FIM) all contain specific directions and processes to assign responsibilities, accountabilities and manage the relationship between the OMNR and SFL holders. The development of those strategies was accompanied by OMNR staff reorganizations which recognized the decreased operational role of local OMNR offices in the direct delivery of forest management. A review of the District organization charts indicated that OMNR staffing for the adjacent Iroquois Falls Forest, which is an established SFL, consisted of a forester, and two and a half technician person years. The CMRMU had basically the same complement of staff, although it is a Crown Management Unit with additional and different responsibilities. It is the auditor's assessment that there is a larger OMNR field workload associated with managing a Crown Unit than where OMNR is in a partnership role with an established SFL.

The OMNR had been unsuccessful in its attempts to establish an SFL on the CMRMU. In the absence of an SFL, the Cochrane District has had a history of undertaking short-term service agreements with Tembec and others, to carry out various forest management functions.

The auditor is of the opinion that OMNR was responsible and accountable for the actions of its contractor. This responsibility included the responsibility to monitor contracted functions and take action on problems. OMNR did not meet those responsibilities. The implementation of these service agreements was characterized by confusion between the parties with respect to reporting requirements, and in some instances disputes with regard to work responsibilities (e.g. dispute with respect to deliver of silviculture, (Section 3.4.3.)). Some additional examples are discussed below.

The auditor was informed by the OMNR that it had not reviewed the Trends Analysis Report (contracted to Tembec) prior to its submission to the auditor (July 28th, 2005) as an IFA document. OMNR indicated that it had received the document only immediately before it was provided to the auditor. Tembec indicated that the reason for the short lead time for submission of the Report was that they had not received some required information (e.g. text and tables) from the OMNR in time to produce the Report earlier.

Subsequent to the submission of the Report, OMNR staff informed the auditor that it disagreed with some of the text and information. The OMNR had not requested revisions to the report, or expressed their concerns to the auditor prior to the submission of the First Draft Audit Report (November 1st, 2005). The OMNR explanation for this was other work priorities.

In another instance, the auditor became aware of a dispute between OMNR and Tembec with respect to FRI information produced by OMNR and contained in the approved 2003 FMP. The FMP states:

"Depletion area in both the Moose River and Cochrane sub-units had been mistyped as barren and scattered instead of the proper depletion coding. These inconsistencies in the FRI amounted to thousands of hectares ..."

OMNR informed the auditor that in this instance the FMP text was incorrect, and that Tembec had used the FRI database incorrectly. The auditor was informed that as a result of this audit finding, an FMP amendment would be made.

These examples underscore the fact that OMNR did not always adequately monitor and verify documents produced by its service contractor in a timely manner. These problems may be in part symptomatic of large work loads combined with high staff turnover rates, however, this audit should not have been the mechanism by which these issues came to OMNR's attention.

Recommendation # 1:

The OMNR District Manager should develop a procedure that ensures services and products produced by its contractors are supplied, reviewed and approved in a timely manner.

3.2. Public Participation

3.2.1. Local Citizens' Committee

A Local Citizens Committee (LCC) is established to help the forest management planning team prepare the forest management plan. The committee must include local citizens representing a range and balance of community interests. LCC responsibilities include ensuring the effectiveness of public consultation, assisting with the identification and analysis of management alternatives, participating in the development of values maps, monitoring the implementation of the plan, and providing advice to the District Manager (DM) on plan amendments and issue resolution. Each forest management plan must contain a LCC general statement of agreement or disagreement with the plan.

The auditor interviewed LCC members and reviewed the minutes of meetings for the audit period to determine the involvement and effectiveness of the committee in the forest management process.

The Cochrane LCC was involved with the development of the FMPs for the 1998 CMU, the 1998 MRMU and the 2003 CMRMU. The LCC was established under the 1996 FMPM. As discussed below, when fully functional, membership on the LCC included representation of the range and balance of interests from the communities on the Unit.

When functioning, the LCC reviewed plan amendments, recommendations of past audits, Annual Work Schedules, and values maps. Nevertheless, the auditor determined that the LCC did not fully meet its responsibilities. Reasons for this audit conclusion are as follows:

- The LCC did not function for an eight month period (September - December 2001 and March – June 2002) due to member dissatisfaction with the workload, disagreement with respect to the LCC mandate, and poor attendance.
- There was inadequate participation by the LCC on the planning team (Section 3.3.1).
- It did not participate in the full range of its TOR responsibilities (i.e. identification and analysis of management alternatives).

Additionally, the LCC had a serious problem recruiting and retaining members. In response, the OMNR sent out 162 letters in an effort to recruit new members. This initiative failed to recruit any new members. The auditor determined that issues associated with the functioning of the Committee and the recruitment of members included;

- Excessive time requirements associated with the responsibility for four Forests.
- Frustration with the complexity of the planning and plan implementation processes.
- A perception of not having the required forestry knowledge to be effective.

After July 2002, the OMNR resorted to using personal contacts to recruit new members and was successful with this approach.

The auditor was informed by the OMNR that there would be a rationalization of management units in the Cochrane area that would reduce the number of

Forests for which the LCC would be responsible⁸. The OMNR has also produced new training materials for LCC members that should be helpful. While these are positive initiatives, the auditor remains concerned that they will not resolve all the issues associated with the functioning of the Cochrane LCC. The following recommendation is provided to address these concerns.

Recommendation # 2:

The OMNR District Manager should conduct a workshop with past and present LCC members to discuss problems and develop strategies to enable the successful functioning of the Cochrane LCC.

3.2.2. FMP Standard Public Consultation Process

Public consultation opportunities are to be provided during the forest management planning process. These include an invitation to participate in the planning process, two public information centres, review of the draft plan and inspection of the approved plan. The public has an opportunity to request a Ministry of Environment and Energy (MOEE) "bump-up" of a specific proposed forest management activity to the status of an individual environmental assessment.

Although there were time lags between actual planning milestone dates and the dates identified in the terms of reference, public notification requirements were met. These time lags included:

- Delay in the 1st Information Centre from September 12th, to October 16th, 2001.
- Delay in the public review of the draft plan from August 28th to December 12th, 2002.
- Delay in the public inspection of approved plan January 13th to April 16th 2003.

Although the Plan was signed on April 1st, 2003, commencement of operations was delayed until July 2003 on the Cochrane sub-unit. The principle reason for this delay was related to the Ontario Public Service (OPS) strike in 2002 which affected the remainder of the planning schedule including canceling and rescheduling of the 2nd open house and the time required to negotiate final plan required alterations including adjustment to some of the modeling parameters.

⁸ The auditor was informed that the Cochrane LCC will be responsible for three forest management units in 2006.

The circumstances around these delays are understandable. The delays did not substantially affect the implementation of the FMP.

The auditor conducted interviews and reviewed public notices (e.g. Invitation to Participate, Notice of the First Information Centre, Notice of the Second Information Centre, Notice of Draft Plan Review, and the Notice of Plan Inspection) mailings and documents. Opportunities for an individual environmental assessment were communicated in the public notices. No requests for an individual environmental assessment were made.

All FMPM public consultation requirements were met.

3.2.3. Native Peoples' Consultation

Native communities have the option to choose an additional consultation and documentation opportunity with respect to forest management planning, referred to as the Forest Management Native Consultation Program (FMNCP). In addition, OMNR District Managers are required to conduct negotiations with native communities to identify and implement ways of achieving more equal participation by Aboriginal peoples in receiving benefits from forest management.

Invitations to participate in the forest management planning process were sent to the Taykwa Tagamou, Wahgoshig, and Moose Cree First Nations. This invitation included an offer to utilize the FMNCP or the standard public consultation process. The Taykwa Tagamou First Nation and the Wahgoshig First Nation elected to utilize the FMNCP. The auditor determined that a Native Background Information Report, a Report on the Protection of Identified Native Values, and a Final Report on the Protection of Identified Native Values was produced for both communities.

The Moose Cree First Nation participated in the process up to the First Open House but then decided to withdraw from the formal process. A native background information report and a native values map were prepared by the First Nation. Community leaders and individuals continued to dialogue with both Tembec and the OMNR to ensure their interests were addressed.

Interviewed representatives from the Moose Cree First Nation indicated that there were financial constraints and a lack of technical capacity within the community which limited their ability to participate effectively in the forest management planning process. The auditor was informed that the Moose Cree First Nation funding issue was related to their desire to conduct their own independent review of planning issues. Government funding was available for some forms of input (e.g. native values maps). However, the auditor was informed by the First Nation that additional funding was needed for survey work and the training of band members. Travel and accommodation expenses were paid for participation on the LCC and on the planning team. The provision of additional funding for First Nations to participate in

FMP planning processes is a provincial issue. OMNR is working to address this concern and the auditor does not provide a recommendation.

During the audit period the OMNR, Tembec, and First Nations conducted a number of negotiations that resulted in more effective First Nation participation in forest management planning and operations. These negotiations partially addressed OMNR obligations with respect to Environmental Assessment (EA) Condition 77. OMNR and Tembec were involved in the development of a number of additional opportunities for First Nations employment opportunities and apprenticeships.

The Taykwa Tagamou and Moose Cree First Nations were responsible for the majority of harvesting operations on the CMRMU. Training programs were conducted with First Nations' contractors on culvert installations, forest management practices and compliance reporting. The auditor determined that these discussions and initiatives were largely successful, and the OMNR substantially met First Nation FMPM requirements and Condition 77 obligations.

The Taykwa Tagamou and Moose Cree First Nations informed the auditor of their long-term desire for the establishment of a First Nation SFL on the Moose River sub-unit. Challenges associated with this sub-unit include difficult access, low volumes, seasonal harvesting restrictions, and the high cost of delivered wood. The auditor believes that further progress on this issue will require significant capital, expertise, and planning to determine if such an SFL would be viable.

3.2.4. Annual Work Schedule Public Inspection

Annual Work Schedules (AWS) must be prepared and approved prior to the commencement of forest management operations. The AWS lists operations which were planned and approved in the forest management plan and that are scheduled for implementation that year. OMNR staff must ensure that it is complete and consistent with the FMP, the LCC inspects the AWS, and the approved schedule must be available for public inspection.

Prior to the commencement of operations, notices were sent to stakeholders and placed in local newspapers. The LCC inspected the Annual Work Schedules except for the period when it was not functioning. Section 3.2.1 provides discussion and a recommendation associated with the functioning of the Cochrane LCC.

3.3. Forest Management Planning

3.3.1. Planning Team Activities

The District Manager must appoint a planning team and a Plan Author. The planning team must represent a wide range of natural resource expertise. A TOR must be developed by the Plan Author and approved by the OMNR District Manager. It must identify all the tasks required for the preparation of the plan and identify the responsibilities of all planning team members.

The auditor interviewed the District Manager and members of the planning team, and reviewed minutes of meetings and related correspondence. A multi-disciplinary planning team was established and approved. The Plan Author was a Registered Professional Forester.

The LCC member of the planning team resigned in August 2001, and was not replaced from that time through to plan approval in July 2003. This meant that the planning team operated without an LCC member for most of the planning process. This circumstance eliminated a major avenue for LCC input in the development of the plan. Section 3.2.1 provides information on the issues associated with the recruitment and retention of LCC members.

Recommendation # 3:

The Cochrane District Manager must ensure that the LCC has representation on the CRMU forest management planning team.

The planning team communicated with the public through the use of notices (i.e. newspaper ads, mail outs), letters and meetings with concerned individuals. The required formats for planning were followed as per the FMPM. There was considerable variation in the implementation of the plan schedule, including changes to the timing of the 1st and 2nd Information Centres (due to a public service labour dispute), the inspection of approved plan and commencement of operations. Late alterations to SFMM modeling resulted in revisions to harvest allocations. The OMNR decided not to undertake a public review of the revised allocations because harvests levels were lowered and a review would jeopardize plan implementation schedules. The FMPM provides for alterations after the draft plan review public consultation process has been completed. In this instance the auditor determined that harvest levels were lowered, the effect on other plan targets was negligible, and there was no history of over-allocation of wood on the Unit. The auditor concludes it was appropriate for the OMNR not to undertake a further public review.

3.3.2. Resource Stewardship Agreements (RSAs)

RSAs are business to business agreements negotiated between a SFL holder and a tourism establishment holding a Resource-Based Tourism License issued by the Ministry of Tourism and Recreation. The CMRMU is a Crown Unit and RSAs are not required. The planning team considered the OMNR "Process for Addressing the Resource-Based Tourism Policy (1997)" in preparing the 2003 FMP. In addition the District had a District Remote (Wilderness) Tourism Strategy (RTWS) (1996) in place which was used to protect tourism values in the FMP. This strategy encompassed all of the tourism values in Cochrane District and was developed through consultation with the public. The RTWS encompassed all of the Moose River Management Unit and portions of the Cochrane Management Unit. The Local Citizen Committee was aware of the RTWS and its preparation throughout the FMP development phase.

It is the auditor's opinion that this was an effective process that responded positively to tourism planning requirements and concerns.

3.3.3. Source of Direction

Documents which provide context and direction for the preparation of the forest management plan must be made available to the planning team and the LCC at the outset of planning.

A list of manuals, guidelines, policies, directives and administrative procedures were made available to the planning team as required and were listed in the Planning Team Terms of Reference. The forest management plan objectives were prepared in accordance with the requirements of the FMPM and addressed forest diversity, sustainable social and economic benefits, silviculture and the provision of forest cover for those values that are dependent on forest cover. Management objectives were established within the context of broader direction in legislation, policy, regional strategic direction, local land use, and resource management direction.

The auditor determined that the appropriate sources of direction were used in the development of the FMP.

3.3.4. Introduction

The FMP introduction contained a properly prepared and signed briefing note and statement of how OMNR's Statement of Environmental Values (SEV) under the Environmental Bill of Rights was considered in the preparation of the Plan.

As required, an index to the environmental assessment components of the plan was included.

3.3.5. Management Unit Description

The description of the management units met the requirements of the FMPM. For management purposes the Cochrane Moose River MU was divided into the Moose River sub-unit and the Cochrane sub-unit. Description tables adhered to required formats and included information about the administration, geology, current forest condition and other forest resources. Social and economic information was provided. An estimate of landscape processes for net primary productivity and water yield was provided.

The auditors determined that the 1994 FRI was updated for the preparation of the 1998 - 2003 CMU and MRMU FMPs.

The Plan Author used forecasts of depletions for the last two years of the 1998-2003 plan term, to update the inventory to the start of the new plan term, thereby creating the "planning database". It was assumed that the remaining harvest areas in the 1998-2003 plan would be harvested in their entirety, and were categorized as depleted to reflect this assumption. The most recent information on plantations and free-to-grow was also used. The auditor believes this approach was reasonable.

Problems related to FRI typing are discussed in Section 3.1.

Socioeconomic profiles were created for the communities of Cochrane, Kirkland Lake, Timmins, and Smooth Rock Falls. The profiles included a description of the demographics and migration, the economic environment, and non-industrial forest uses on the unit. These profiles met FMPM requirements.

The FMP and supplementary documentation contained lists and descriptive text specific to nineteen regionally featured wildlife species. These species represented the use of a broad range of forest conditions and habitat characteristics. Wildlife species were categorized as significant at the regional level, sub-regional level and management unit level.

The Forest Management Guidelines for the Provision of Marten Habitat direct that 10 to 20 percent of the area capable of supporting marten be set aside in core areas of 30 to 50 km². The Guideline was used in conjunction with the Ontario Wildlife Habitat Assessment Model (OWHAM) to identify and map marten core areas and incorporate them into wood supply analyses. The SFMM was used to non-spatially define preferred and marginal habitat availability for marten and predict the probable future availability.

At the time of the audit, regional guidelines were being used for caribou management. These guidelines included the maintenance of travel corridors, and the protection of suitable habitat. The Cochrane District had a number of caribou research projects underway (e.g. collaring of caribou) to develop information on

population size and migration. Due to inadequate caribou habitat and population information OMNR and Tembec had cooperated by modifying access and harvest activities when new information became available.

Through record review and interviews the auditor determined that values data as recorded in OMNR Natural Resources Values Information System (NRVIS) and values maps were made available to Tembec for the 2003 planning process as per FIM requirements. Portions of the unit had been aerial surveyed to update wildlife habitat information. When new data was gathered with respect to featured species and other wildlife the information was mapped on the Values Maps. Protection measures were taken according to the management guidelines for each of these species. Important non-timber resources on the CMRMU (e.g. fish habitat, native values, commercial tourism operations, traplines, bait areas, bear management areas) are identified on the values map.

3.3.6. Objectives and Strategies /Management Alternatives

The FMP must establish direction for managing the forest in order to achieve forest sustainability which is defined as "long term forest health". Legislation and policy, resource management issues, the current state of the forest and the desired future forest condition all influence the strategic direction of the FMP. These factors must be considered by the planning team and the LCC in the development of management objectives and strategies.

The auditor reviewed planning team and LCC minutes, supplementary documentation (e.g. Native Background Report) and the FMP. Interviews were conducted with the 2003 Plan Author, District Manager, planning team and LCC members, First Nations representatives, and OMNR and Tembec staff. Value maps and resource model outputs (e.g. SFMM, SEIM) were also examined.

The forest management plan objectives for all plans were prepared in accordance with the requirements of the FMPM and addressed forest diversity, sustainable social and economic benefits, silviculture, and the provision of forest cover for values dependent on forest cover. Management objectives were developed within the context of broader direction from legislation, policy, regional strategies, local land use and resource management direction. The overall goal of the FMP was to provide a sustainable supply of forest products while maintaining biological forest diversity within the bounds of natural variation inherent to the region.

In the 2003 CMRMU FMP, six groupings of management objectives, including four groupings required by the CFSA, were defined;

- Conservation of Biological Diversity.
- Maintenance and Enhancement of Forest Ecosystem Condition and Productivity.

- Conservation of Soil and Water Resources.
- Forest Ecosystems Contributions to Global Ecological Cycles.
- Multiple Benefits to Society.
- Accepting Society's Responsibility for Sustainable Development.

The FMP included the development of targets and strategies. The objectives were used in the creation of a number of management alternatives which were examined to determine how well they provided benefits while ensuring sustainability. The objectives and related targets and strategies were used to create a comprehensive range of management alternatives:

- Alternative 1 (Mandatory): Maximize Timber Production Potential with Limited Silviculture Budgets.
- Alternative 2 (Mandatory): Maximize Timber Production Potential with Unlimited Silviculture.
- Alternative 3 (Mandatory): Meet Anticipated Industrial Demand with Unlimited Silviculture.
- Alternative 4: Meet Anticipated Industrial Demand with Limited Silvicultural Funding.
- Alternative 5: Maximize the Caribou Habitat Potential of the Forest with Limited Harvesting.
- Alternative 6: Maximize Timber Potential of the Forest without the Use of Chemical Treatments (No Tending).

In addition to the above alternatives, a natural benchmark scenario was created to provide a comparative as to how the forest might develop over time without human intervention. This alternative also provided the bounds of natural variation, minimum and maximum values, is the basis for old growth targets, and provided the future forest condition benchmark. The benchmark scenario was used to help compare the alternatives. The "No Tending" management alternative was also constructed in response to a request from the LCC.

The detailed evaluation and comparison of management alternatives included an assessment of forest sustainability in which the results of forest modeling were assessed against measurable indicators of sustainability and various objectives at 20-year intervals for a period of 100 years. More specifically, indicator levels and the degree of objective achievement in the year 2063 were used for the comparison of management alternatives. Also, a scoring system was employed to assign a

score for each indicator or objective based on the number of acceptable terms where the indicator value was within the upper and lower limits, or where the level of objective achievement met or exceeded the plan objective.

The various assumptions used to define the land base and develop modeling inputs for forest dynamics and silvicultural options were reasonable and based on the best available information relating to the management unit. Base constraints, common to all management alternatives, were described separately in the FMP. These were subjected to extensive input refinement and sensitivity analysis to ensure they would provide realistic outcomes for the various management alternatives.

Initial area inputs were consistent with available and reserve forest areas in the FMP tables. With respect to forest reserves, the accumulating forest reserve function in SFMM was not employed. Future depletions associated with riparian reserve prescriptions were estimated by applying 30m reserves on all waterbodies including intermittent streams. This area was then removed from the available forest land base in SFMM.

Identified proportions of each species volume identified to be left unharvested were intended to reflect the harvest method, and un-merchantable or un-utilized tree species left on site. All spruce, pine, and fir volumes were expected to be utilized except for 5% of the spruce in the lowland forest units. These remaining volumes were attributed to careful logging practices and the retention of snag trees. The use of conversion rates of 3% to 5% of harvested area to roads and landings were reasonable.

Age-class retention targets for mature and over-mature forest within each forest unit group were reasonable and consistent with OMNR direction.

The outputs from SFMM support the analysis of management alternatives and the goal of sustainable forest management. With respect to the total amount of Managed Crown Forest Available for Timber Production, there was little material difference between the management alternatives. All management alternatives also achieved age class structure targets for the retention of mature and overmature forest in every term.

Comparison of average annual harvest volumes by species group revealed that only Alternatives 3 and 4 (the Selected Management Alternative (SMA)) achieved a relatively stable flow of products over the long term.

The selected management alternative (Alternative 4) was considered sustainable because:

- It provided forest diversity values within the natural bounds.

- It provided managed Crown forest area available for timber production within the natural bounds.
- It provided habitat for the selected wildlife species that were within the natural bounds.
- It provided available harvest areas that were considered to be sustainable and the percent of available harvest area actually utilized was expected to be 100%.
- Landscape diversity was expected to be within the spatial bounds of natural variation.
- Disturbance due to harvest showed movement towards natural disturbance patterns.
- It had a relatively good balance of timber and non-timber objectives, which provided a favorable socio-economic ranking.
- The silviculture program and budget supported the selected harvest level and met plan objectives.
- It provided stable social and economic benefits, maintained access, and provided protection for fish and wildlife values.
- It maintained a proportion of the CMRMU in mature and over-mature age classes.

3.3.7. Operational Planning

Operational planning selects areas for harvest, tending and renewal operations for the five year term of the forest management plan. Preferred silvicultural treatment packages and the silvicultural ground rules are identified and prescriptions to protect specific values are developed through Area of Concern (AOC) planning. Locations of new primary and secondary road corridors must be determined.

The auditor interviewed the Planning Team Chair, LCC members, Tembec and OMNR staff. Planning team minutes, supplementary documentation, silvicultural guides, forest operations prescriptions (FOPs), wood supply commitments, compliance plans, values maps and the FMP were examined.

The OMNR provided direction with respect to managing the forest for featured and selected wildlife species such as caribou, moose, and marten. Tembec staff was responsible for the determination of road locations and harvest allocations. Public input was considered in the process.

FMPM requirements for the documentation of AOCs were met. Record reviews indicated that planned harvesting, renewal and tending activities reflected the values attributed to the AOC and specific prescriptions were developed to protect the value. All AOCs were identified on maps. A review of prescriptions for AOCs supported by inspections in the field indicated that they properly reflected specific site conditions.

A local adaptation of the marten guidelines resulted in the retention of shorter trees on harvest sites. The guidelines assume a component of suitable habitat is represented by a 15-metre tree height that represents 80-year-old trees. The CMRMU is located in the northern claybelt section of Ontario with slower growing trees on less productive sites. A lower height-to-age relationship of twelve metres (12 m) was used to represent 80-year old trees. The auditor concluded that this was an appropriate modification of the guideline that effectively responded to conditions on the Unit.

OMNR, Company, and LCC representatives expressed concerns about the applicability of marten guidelines on portions of the Unit since careful logging methods (Careful Logging Around Advanced Growth (CLAAG) and Harvesting with Regeneration Protection (HARP)) leave significant numbers and groupings of standing trees that satisfy the intent of the guidelines. There was an additional concern that the "guidelines" were "rules" that must be adhered to regardless of local conditions and applicability. The auditor notes that the marten guidelines are intended to be adapted to fit local situations based on the professional judgment of experienced practitioners. Deviations must be recorded and rationalized in the forest management plan on the basis of compelling biological or socio-economic concerns. This was demonstrated with the reduction in height of snag trees on the Unit. However, the auditor is of the opinion that local OMNR and Tembec staff do not fully appreciate the flexibility that they do have with respect to guideline implementation.

Suggestion # 1:

Corporate OMNR guideline training should reconfirm the degree of flexibility that planning teams have in implementing guidelines.

The auditor concluded that there is inadequate public and forest industry understanding of the purpose and the development process for guidelines. For example, while field staff (OMNR, Tembec) supported the protection of wildlife habitat through guidelines, they also expressed concerns that guidelines may be developed without adequate:

1. Science or testing.
2. Understanding of social and economic considerations.

3. Reference to local forest conditions.
4. Understanding of direct industry costs.

However, the auditor was informed by Corporate OMNR that the teams developing guidelines include scientists, forest industry and non-government representatives and that the guidelines respond to a mixture of science, social and economic demands. Discussions during the audit indicated that this fact is not well known.

Suggestion # 2:

Corporate OMNR needs to increase understanding (e.g. training of LCCs, OMNR and industry) of the rationale and process for developing and implementing forest management guidelines.

Harvest operations were selected from areas that met the eligibility criteria and were consistent with the AHA. Separate selection criteria were developed for each of the activities of harvest, renewal and tending. Contingency areas⁹ and volumes for a one year period were summarized in the FMP. This area was allocated as a replacement area for harvest and was only to be used if required.

Wood supply commitments were identified and addressed in the FMP. There were no identified salvage areas.

The Silvicultural Ground Rules (SGRs) were developed according to appropriate guidelines. The Silvicultural Treatment Package (STP) represented the range of acceptable types of harvest, renewal and tending treatments for the appropriate forest unit. Each STP included the silvicultural system, the harvest method, the renewal and tending treatment, and regeneration standards and targets.

The access plan for the CMRMU supported the development of the unit over time. Documentation of the selected road corridors was located in text, tables and maps in the FMPs.

Field inspections supported by document and record reviews lead the auditor to conclude that operational planning requirements were appropriate and met FMPM requirements.

⁹ A Contingency area is an area set aside to accommodate unforeseeable circumstances (e.g. wildfire). Contingency areas are only used as needed and must be sufficient to provide for a minimum of three months and a maximum of one year of harvest operations.

3.3.8. Plan Review, Approval

A draft plan must be submitted for OMNR and public review. Required alterations must be made available to the public according to the approved terms of reference. The draft and final plan must be certified by the Plan Author, and the final plan must be certified by the OMNR District Manager and approved by the OMNR Regional Director.

Public notification requirements were met. There were variations from the planned public consultation schedule due to a public service labour dispute and delays in the preparation of planning materials.

The FMP included all appropriate certification and approvals. The contributors' page was complete and the certification included the required exception reference for prescriptions that differed from specific direction or recommendations in the implementation manuals.

3.3.9. Plan Amendments

The 1998 CMU had twenty-three amendments all of which were administrative. The MRMU FMP had twenty-four administrative amendments. Ten administrative plan amendments were recorded to the end of 2005 for the 2003 CMRMU Plan. Rationale for the amendments was provided. Dates for the last five amendments were not recorded on the master list at the front of the FMP. The auditor's review of plan amendments indicated they were required and, with the above noted exceptions, all procedures were followed.

3.3.10. Contingency Plans

No contingency plans were implemented during any of the FMP terms.

3.3.11. Annual Work Schedules

Annual Work Schedules (AWS) must be submitted at least three months prior to April 1st for OMNR review and approval. The AWSs are reviewed by the LCC prior to approval by the OMNR District Manager and are made available for public inspection prior to the commencement of field operations.

The auditor determined that no operations commenced prior to the approval of the AWSs. When it was active, the LCC reviewed the AWSs (See Section 3.2.1.) and public notification requirements were met.

The auditor was concerned with respect to the large number of alterations the OMNR required its service contractor to make prior to approval. For example; the 2002 - 03 CMU AWS had 80 required alterations; the 2000 - 01 MRMU AWS had 64

required alterations and the 2004 - 05 CMRMU AWS had 145 required alterations. Tembec staff informed the auditor that many required alterations were editorial and the result of multiple reviewers providing similar comments. The auditor determined that a number of the alterations were associated with incorrect Ontario Base Map (OBM) numbers, the listing of tertiary access and water crossing installations. The auditor sampled a number of AWSs that had required alterations and determined that the OMNR reviews were thorough and reasonable. It is the auditor's opinion that the AWS production and approval process could be completed in a more efficient manner.

Recommendation # 4:

The OMNR and Tembec should engage in increased dialogue during AWS development to reduce the number of required alterations.

3.4. Plan Implementation

3.4.1. Areas of Concern

An area of concern is a defined geographic area that protects an identified value. A detailed prescription is developed for the area in order to prevent, minimize or mitigate adverse effects of operations on the identified value.

The field audit included inspections of moose aquatic areas, water crossings, and riparian buffers. This was supplemented with a review of AOC prescriptions, values maps and various guidelines in effect during the audit term. In addition interviews were conducted with planning team members, LCC members, industry and OMNR staff.

A random sample of AOCs across the Unit indicated that prescriptions were consistent with the FMP and AWS and were sensitive to specific site conditions. Record reviews indicated that planned harvesting, renewal and tending activities reflected the values attributed to the AOC and included specific prescriptions to ensure protection (e.g. aerial spray buffer adjacent to riparian areas). There were no exceptions to AOCs noted in the FMPs. Values maps were updated during the audit term.

3.4.2. Harvest

The audit sampled approximately 30% of the planned harvest activities as a primary audit activity and a significant number of inspections sites where harvesting had occurred but was not the primary audit activity (i.e. planting, tending, and site preparation sites). Silvicultural strategies were directed towards efficient and

successful management of the predominant species on each unit. Wood supply commitments were detailed and addressed in the three FMPs.

For all FMPs, silvicultural ground rules (SGR) were developed, incorporating local knowledge and the experience gained by the planning team from past practices. Silvicultural treatment packages (STPs) were developed which identified the harvest method, logging method, renewal treatment(s) and tending treatment(s). STPs were also developed to renew naturally depleted areas (e.g. fire). The audit site inspections found that harvest operations were consistent with the FMPs, were conducted in accordance with the SGRs, were consistent with the FOPs, and were appropriate to specific site conditions. Several recommendations in the previous Independent Forest Audit(s) were directed at harvesting operations (Table 9). Recommendations addressed issues such as the appropriate retention of snags, the provision of downed woody debris, the reduction of slash pile area, improvements in water crossing installations and the elimination of wasteful practices. With a few exceptions (i.e. wasteful practices, localized rutting) the field audit confirmed that progress had been made towards resolving these issues.

Harvest operations were primarily carried out with tracked feller-bunchers, grapple/clam bunk skidders.

Harvesting on the Cochrane sub-unit was undertaken by independent operators (Forest Resource Licencees (FRLs)). At the time of approval of the 1998 CMU FMP there were four FRL licencees with areas greater than 100 ha (including Norbord and Tembec) and fifteen FRL licencees with allocations of less than 100 ha. Some fuelwood and personal use permits were also issued annually.

The FRL holders were responsible for forest access. The 1998 FMP reported that all weather access roads had not been developed on the Unit due to the high cost of road construction for small operators.

FRLs did not harvest planned allocations during 1999 - 2000, 2000 - 01, and 2001 - 02. In 2003 - 2004, harvest levels were less than the average annual rate of the forest management plan. The Comparison and Trends Analysis of Planned vs. Actual Forest Operations Report reports that there were instances where licencees had outstanding management fees and did not harvest. As well, during the audit period poor lumber prices, and US softwood lumber countervail duties resulted in a short term shut down of the Cochrane sawmill. This temporarily reduced demand for fibre from the Unit.

On the Moose River sub-unit, winter harvesting was implemented to avoid site damage on poorly drained sites. In the past, site conditions on the sub-unit effectively limited harvest operations to four to five months of the year. To extend its harvesting and haul seasons, and provide a longer work period Tembec had investigated technologies which allow harvesting on soft ground. One technology

included the use of high floatation machinery (e.g. Ponsse forwarder) for operations on lowland sites (See Photograph #1), and low pressure tires on haul vehicles. The field audit revealed that the equipment minimized site damage and was well suited to operating on wetter sites where a four-wheeled skidder would cause more damage.



Photograph #1. Ponsse forwarder operating in black spruce lowland area.¹⁰

Some instances of wasteful practices were observed during the field audit. A review of compliance records indicated that wasteful practices were not a significant issue on the CMRMU. However, the auditor determined that the level of OMNR inspections on the CMRMU over the audit period was inadequate and remains concerned that the "true" number of infractions may not be known (See Section 3.6.1.).

The practice of placing harvest blocks "in suspension" for the whole period of the license complicates the assessment of wasteful practice. A suspended block is a harvest block that can be legally kept open for harvesting and hauling purposes for the entire period of a licence. As long as the block remains open, wood can be left

¹⁰ Photo Courtesy of Tembec Inc.

on site. The practice allows operators to respond to markets and provides operational efficiencies.

On the CMRMU, the suspension of blocks resulted in operators hauling some wood but leaving other wood (primarily poplar) piled in the bush. Wood was not hauled for a number of reasons including markets, weather, and logistics.

The field audit revealed that wood left on suspended blocks can result in the following issues:

- Wood quality can deteriorate to a point where merchantable volume is lost. (Norbord officials were particularly concerned with respect to the loss of poplar veneer).
- Suspended blocks cannot be scheduled for silvicultural treatments until the harvest and hauling of wood is deemed complete. This can compromise silviculture effectiveness as competing vegetation can be well-established on sites prior to renewal treatments and areas where wood was piled is not available for treatment.
- Wood left on suspended blocks can also result in a public perception that it is being wasted.

Senior OMNR compliance officials informed the auditor that there were procedures available in the CFSA and FOIP for the OMNR District to ensure that wood is not wasted and to allow suspended blocks to be released for silviculture.

While the auditor understands the rationale for suspending blocks, the issues associated with poor wood utilization, constraints to silviculture and negative public perceptions detract from the benefits of the practice. A recommendation is provided.

Recommendation # 5:

The OMNR Cochrane District Manager should develop a protocol with respect to "suspended blocks" to ensure that harvested wood is hauled in a timely manner and that routine silvicultural operations are not adversely affected.



Photograph #2. Suspended Block (Block 65) with poplar left on site - Cochrane Sub-unit.

Discussions with OMNR, Tembec, Grant, Norbord, First Nation contractors and other Forest Resource Licencees indicated general dissatisfaction with the existing wood allocation process. Specific issues included;

- There is a large number of marginally viable small operators on the Unit (15 FRLs have allocations less than 100 ha).
- There was a perception that low prices were being offered for directed wood.
- The cost associated with collecting and hauling small volumes of wood was high.
- There were public complaints associated with perceived wood wastage on suspended blocks (also, the auditor received complaints during the audit).

The auditor understands the historical context and social issues which have lead to the high number of Forest Resource Licencees (FRLs) and the complex wood allocation system on the CMU. However, the wood allocation system on the

CMU is not contributing to the effective harvesting and distribution of wood products.

Recommendation # 6:

The Cochrane District Manager should review the wood allocation process on the Cochrane sub-unit to improve the viability of harvesting operations and the delivery of harvested wood to markets.

On the MRU, actual harvest levels for the 1998 - 2003 period were below average annual planned levels (11,725 ha vs. 18,910 ha (62%)). Softwood harvesting achieved 63% of planned average annual harvest while hardwood harvests achieved approximately 50% of the planned average annual harvest. Harvesting had been focused on other Forests in the District that were approaching the end of their operating plan terms. Poor markets and the on-going Canada-U.S. softwood lumber dispute also impacted planned harvesting.

On the CMU, harvesting underachieved planned levels during the audit period (e.g. 2003-2004 58% achievement of planned harvest volume). The Comparison and Trend Analysis of Planned vs. Actual Forest Operations Report indicates that this underachievement was largely a result of the fact that FRLs did not harvest the volumes anticipated during the plan term.

While there were no identified salvage areas in the FMP, a salvage operation was conducted during the audit term on the CMRU to harvest poplar damaged by an infestation of Forest Tent Caterpillar. All required documentation for the salvage operation was completed, including an administrative amendment to the FMP.

3.4.3. Renewal

The audit sampled approximately 16% of the artificial renewal activities and 30% of the natural renewal activities¹¹ conducted during the audit period. Renewal eligibility areas were based on the harvest operations, areas of natural disturbance, backlog barren and scattered, and previously harvested areas. Activities observed during the field audit were approved in the FMP, complied with the applicable silvicultural ground rules, were consistent with the FOPs and were appropriate to specific site conditions. Site inspections on the Moose River sub-unit confirmed contained sufficient natural regeneration. Residual stems retained in HARP treatments (see Photograph #3) typically allow sites to be classified as free-to-grow (FTG) within three years following treatment. CLAAG sites are typically declared FTG within 11 years of treatment.

¹¹ HARP, CLAAG, and clearcut sites.



Photograph #3. HARP harvest site on the Moose River sub-unit.

The 1998 CMU FMP stated that "...lack of access has restricted allocation and regeneration efforts in the past and that access, rather than sound forest management had dictated allocations". The FMP also indicated that funding levels had not been sufficient to artificially treat the areas harvested and that to ensure sustained wood flow on the unit, harvested areas would have to be regenerated to acceptable standards.

On the Cochrane sub-unit, seven sites were inspected for artificial renewal. Five of these sites had low stocking levels. The auditor concluded that regeneration issues identified in the 1998 FMP continued to exist during the audit period on the CMU. Tembec staff attributed the low stocking levels to poor quality planting stock.

Suggestion # 3:

The OMNR Cochrane District Manager should ensure that Tembec uses planting stock of sufficient size and quality in artificial renewal treatments.

The auditor believes that late planting and follow-up tending were the most significant problems and that the initial investment in silviculture (i.e. artificial renewal) was compromised on these sites.

Recommendation # 7:

The OMNR Cochrane District Manager must ensure that artificial renewal and tending treatments occur within an appropriate time frame on the Cochrane sub-unit.

OMNR had not carried out its silvicultural responsibilities in much of the 1998 - 2003 plan period on the CMU, particularly with respect to planned artificial renewal targets. The reasons given by the OMNR for the lack of silvicultural work was that they were negotiating a service agreement with Tembec to provide those silvicultural services. Tembec assumed responsibility for silviculture in 2001 on the CMU. Tembec staff informed the auditor that, due to a lack of silvicultural information, the company had to undertake surveys in 2001 and 2002 to determine what silvicultural work was required, and then prepare plans to address outstanding requirements. Contrary to the Tembec position, OMNR staff claimed that Tembec was contracted to perform renewal and maintenance duties, adequate silviculture information was available and silviculture should have proceeded.

From the auditor's perspective, regardless of who was responsible, the unacceptable result was that limited silvicultural work was undertaken during this period. Throughout the audit, OMNR and Tembec staff engaged in debates with respect to which party had management responsibility and accountability for the completion of forest management functions and activities. The auditor found this state of affairs unacceptable. Tembec was not an SFL holder on the Unit, and OMNR retained ultimate responsibility for forest management. This responsibility included a requirement to ensure that the terms and conditions of service agreements with Tembec were met. Recommendations are provided with respect to this issue in Section 3.5 and Section 3.6.

The auditor review of the Comparison and Trends Analysis of Planned vs. Actual Forest Operations Report indicated that total planned renewal targets had been underachieved over the past two planning terms (1993 - 1998, 1998 - 2003) and the trend continued into the current term (2003 - 2008) largely due to shortfalls in achieving harvesting targets. During the earlier terms actual achievements varied with an overachievement in artificial regeneration and an underachievement in natural regeneration targets primarily due to reduced harvest levels. The overachievement in artificial renewal in the 1998 - 2003 term was attributed to an increase in the availability of silvicultural funds and, seedlings. Natural regeneration levels underachieved planned targets but increased with the implementation of careful logging during the audit period.

In the 2003 FMP artificial regeneration was expected to comprise one third of the renewal effort. Continual improvement in careful logging practices is expected to result in increasingly successful natural renewal efforts.

The area classified as barren and scattered had declined significantly on the CMU and MRMU since 1993 due to field surveys and reclassification in the inventory. On the MRMU this area had been reduced by 78% (59,346 ha in 1993 to 12,818 ha in 2003). On the CMU the area of B&S/NSR also declined by 79% (from 33,934 ha in 1993 to 7,003 ha in 2003).

On both sub-units the area classified as "depleted" increased. On the Moose River sub-unit the area classified as depleted increased from 39,764 ha (1998) to 42,068 ha (2003). This represents a 5% increase in the area classified as depleted. On the Cochrane sub-unit the area classified as depleted had increased by 71% from 4,367 ha (1993) to 15,098 ha (2003).

Depleted lands (e.g. cutovers and natural depletions) represent approximately 10% of the total productive forest area of the Unit. The auditor notes that spruce is the dominant species on the Moose River sub-unit and it typically requires 10-12 years for this species to achieve free-to-grow status. However, the area with uncertain regeneration status was identified in the 2003 FMP as an issue. As well, OMNR informed the auditor that part of the reason for maintaining the unusually large balance in the Special Purpose Account (SPA) was their concern with respect to the large area with uncertain renewal status on the Unit (Section 3.8.). Tembec had made progress on this issue; between 2000 and 2005, 26,297 ha had been surveyed for regeneration success of which 19,439 ha (74%) was declared FTG. While the auditor acknowledges that progress has been made, it is important that efforts continue to determine the status of depleted lands.

Recommendation # 8:

The OMNR Cochrane District Manager should ensure that efforts are continued to determine the regeneration status of lands classified as depleted.

The field audit inspected approximately 20% of the areas treated by mechanical site preparation. The auditors determined that the site preparation program was conducted in a fashion that minimized site disturbance.

On the Moose River sub-unit, the site preparation program under-achieved plan targets for mechanical site preparation (32%). The reduction in the area of mechanical site preparation was reflective of a reduced requirement for site preparation as careful logging methods on upland and lowland sites resulted in considerably more natural regeneration compared to more conventional clearcutting. Additionally, for jack pine and upland spruce forest units field assessments and

experience indicated that those sites typically had minimal vegetative competition and thin duff layers. Spruce sites also typically contained advanced regeneration.

Chemical site preparation and prescribed burning (slash pile burning)¹² were not planned; however, a prescribed burn (162 ha of slash pile burning) and 356 ha of chemical site preparation was completed.

A slash burning program has been implemented on the CMRMU to minimize the loss of productive forest land. The program was concentrated on areas where artificial regeneration was planned, where access was present, and areas that were most visible to the public. Pile burning met with mixed results due to weather conditions and pile conditions (e.g. excessive soil in the piles, level of compaction). Other options for slash management were being considered (i.e. cut-to-length harvesters) and evaluated as part of Tembec's EMS to address issues associated with the loss of productive forest land. The auditor concludes that the current approach to slash management is realistic and appropriate given current economic and logistical issues.

3.4.4. Tending and Protection

During the audit period the aerial spray program for the CMRMU achieved 63% of the planned target (4,657 ha).

For the MRU, the reduction in the chemical tending program was the result of moving harvest operations from the Fraserdale area to the east side of the -unit where sites were not as competitive. For the CMU, tending levels achieved 25% of planned levels. This shortfall was attributed to;

- The lack of silvicultural activity discussed in Section 3.4.3.
- Lower than planned levels of harvesting and renewal on the Unit.
- Logistical problems implementing the spray program in 2002-2003 (discussed below).

The field audit indicated that Tembec met regulatory requirements with respect to chemical use. Tending programs were approved in the AWS and included all the required buffers. Audit field sites that received herbicide treatments were considered to have required the treatment, and herbicide applications were confined to the treatment area with no signs of drift or overspray.

The auditor concluded that the herbicide program was effective.

¹² The Comparison and Trend Analysis of Planned vs. Actual Forest Operations Report refers to slash pile burning as prescribed burning.

In 2002-2003, an issue arose between OMNR and Tembec with respect to the spray program. The Comparison and Trends Analysis of Planned vs. Actual Operations Report indicated that the 2002-2003 aerial spray program was cancelled when public notices were not advertised in time for the program to be conducted. OMNR contradicted the Report,¹³ and indicated to the auditor that the contractor had submitted the spray plan too late for approval and operations. At the time of the submission of the Draft Final Audit Report, the OMNR informed the auditor that Tembec had agreed with the OMNR position. The significant issue for the auditor is not the determination of responsibility for the failure to conduct the spray program, but rather the fact that the activity did not occur as planned. This situation was symptomatic of a larger issue associated with disputes between OMNR and its service provider and management responsibility and accountability on the Unit. Recommendations are provided with respect to this issue in Section 3.5 and Section 3.6.

3.4.5. Renewal Support

Renewal support activities were carried out to support the following FMP objectives:

- Maintenance of a supply of black spruce, white spruce, and jack pine seed sufficient for regeneration requirements on the Unit.
- Collection of forest tree seed on the Unit as necessary.
- Use of CLAAG and HARP techniques to protect advanced growth on all appropriate sites.
- Retention of residual seed trees to maintain genetic diversity.

No direct seeding had been carried out on the CMRMU since 1993. In the 2003 FMP, direct seeding was forecast for jack pine and lowland spruce forest units; however, data from careful logging surveys of lowland spruce areas had shown that areas suitable for direct seeding were also suitable for natural regeneration. Since 2000, 31.5 hectoliters of seed had been collected.

The FMP estimated the annual planting stock requirements to be 2,000,000 trees. Actual planting stock requirements during the audit period were lower than planned, as field surveys indicated that natural ingress was occurring on harvested sites and careful logging practices reduced requirements for artificial renewal.

No tree improvement operations were scheduled in the current plan. It is the auditor's opinion that renewal support activities during the audit period were sufficient to address renewal requirements.

¹³ At the time of the submission of the Draft Audit Report OMNR had not indicated to the auditor that it disagreed with some of the content in the Trends Report.

3.4.6. Access

The auditor observed a sample of all access activities including road construction, bridges, construction, culvert installation, road maintenance activities and road abandonment. The auditors traveled on primary, secondary and tertiary roads that were constructed and routinely used during the audit period. Roads were maintained only as long as they were being used for timber harvesting, renewal and tending purposes.

Water crossings viewed by the auditor were generally well constructed and were in accordance with the FMP, the AWS and the guidelines. Many of the stream crossings sites observed were temporary winter crossings. Specific guidelines had been followed to construct the winter crossings, and with the completion of operations, stream banks were rehabilitated.

The auditor was impressed with the Tembec's use of moss to stabilize ditches and cutaways and re-habilitate abandoned roads to a more natural condition while reducing the erosion potential of the site (See Photograph #4). A moss layer (preserved from the excavation activities or from a nearby site) was placed over exposed soils/banks with an excavator and lightly tamped to stabilize soils on the site. Tembec has experienced good success with the approach and has widely adopted the strategy on the Moose River sub-unit.

Best Practice:

Tembec's use of moss to stabilize ditches and cutaways and re-habilitate abandoned roads to a more natural condition while reducing the erosion potential of the site.



Photograph #4. Use of moss to stabilize the ditch of a newly constructed all-weather access road.

3.5. Systems Support

3.5.1. Human Resources

The auditor examined the OMNR Cochrane District organizational chart and was provided with a summary of training plans for staff listed in the Audit Plan. Interviews with Tembec and Norbord indicated that they were routinely informed of OMNR policies and directions. The auditor reviewed documents that indicated that Tembec conducted information sessions with sub-contractors. The OMNR conducted information and training sessions with FRLs on the Cochrane sub-unit with respect to CLAAG harvesting, snag tree retention and careful logging practices.

OMNR had difficulty maintaining an effective field presence due to staff shortages and turnovers, particularly on the Cochrane sub-unit where it had direct responsibilities for compliance inspections. Forest management staff recruitment and retention problems have been on-going for a number of years in the Cochrane District. Staff continuity is important for mentoring and knowledge transfer to less

experienced staff, and the incorporation of local knowledge into silviculture and other forest management practices. Strategies to recruit and retain staff could include enhanced classifications and pay scales, housing assistance, and direct assignment of staff to the District for specified time periods.

Recommendation # 9:

Corporate OMNR, with Cochrane District support, should develop and implement human resource management strategies specifically for the recruitment and retention of professional forest management staff in the Cochrane District.

The auditor also believes that the CMRMU does not have sufficient OMNR forestry staff assigned to it. Section 3.1 outlines the auditor's view that a Crown Management Unit requires more OMNR staff than a standard SFL. Evidence to support this view includes:

- OMNR's problems with the management of its service agreements.
- Inadequate compliance monitoring, reporting and document control (see Section 3.5.2., 3.6.1., 3.6.2.).

Recommendation # 10 addresses this concern.

3.5.2. Documentation and Quality Control

Tables 2 and 3 in Section 2.2. describe the different organizations that have had involvement in aspects of the management of the CMU, the MRMU, and the CMRMU. The auditors are concerned by the number of organizations that have had responsibilities for preparing key management planning documents and for the record maintenance.

Continuity, corporate memory and employee qualifications have varied. The negative impact on forest management is readily observed by the 42 recommendations for improvement provided in the previous 2000 Independent Forest Audits (Table 9), many of them related to documentation and quality control.

Corporate OMNR had informed the District of its audit responsibilities, with emphasis on the timely preparation and submission of material as required by the IFAPP. However, the information that the District was required to provide to the auditor was often late, incomplete, and poorly organized.

Since March 2001, OMNR and Tembec have signed a Forest Renewal and Maintenance Agreement and Forest Management Planning Agreements. These agreements transfer some of the same services to the company that is normally

associated with an SFL. However, an SFL is a different legal mechanism and transfers responsibilities for a much broader range of services. On the CMRMU the OMNR continues to retain overall responsibility and accountability for all aspects of management, including records. In the event that the current service agreement is not renewed, OMNR needs to be certain that it will retain access to, and ownership of, all records, data, and correspondence.

The auditor routinely encountered situations where there was confusion with respect to the location of, or responsibility for specific records. This circumstance has existed for a period of time; the auditor notes the 1993-1998 RPFO Author stated that "it must be understood that planning responsibility for the unit (MRMU) changed in 1996 from MNR to Tembec. Because this plan spans responsibilities from two different organizations gaps have occurred in record keeping".

There were also a number of instances where documents were provided to the auditor where information contained in the document was in dispute. For example, as a result of audit reporting the OMNR indicated it would seek an amendment to the approved 2003 FMP with respect to text on the FRI. OMNR also indicated that it had not reviewed the Comparison and Trends Analysis of Planned vs. Actual Forest Operations Report prepared under contract by Tembec and disagreed with some of the information and descriptive text. For the auditor these circumstances support the conclusion that the OMNR had failed to fully exercise its management responsibilities as the forest manager.

The auditor noted that a number of the contracted functions (e.g. AWS, Annual Report, RPFO) were not completed as required by the FMPM. The 1993-1998 RPFOs due in the audit term were both submitted late (CMU 18 months, MRMU 14 months).

Recommendation # 10:

The Cochrane District Manager must ensure that the service provider is meeting its contracted obligations and that OMNR retains access to, and ownership of, all records, data, and correspondence.

3.6. Monitoring**3.6.1. General Monitoring**

Compliance monitoring of the forest is directed by a system which includes planning, inspections of forest activities, information storage, and assessment, and application of penalties (if required). The initial software developed for this system was called the Forest Operations Compliance Inspection System (FOCIS). The field inspection

report was called a Forest Operation Inspection Report (FOIR). The FOIR used FOCIS to input to the provincial Compliance Information System (CIS).

In 2004-2005, the FOCIS software was replaced with the Forest Operations Information Program (FOIP). Following a field inspection, a FOIP Report is generated and contributes to a FOIP FMU summary report. This report is available locally, regionally and at the provincial level.

The 1998 FMP for the CMU was written by OMNR and included a basic compliance program. A "District Strategic Compliance Plan" was subsequently produced for the 1999 - 2004 period. A silvicultural monitoring strategy was also produced which included the assessment of artificial regeneration survival at year two, survival of stocking at year five, and a free to grow (FTG) assessment plan.

The 1998 MRMU FMP preparation was contracted to Malette, which was subsequently purchased by Tembec during the preparation of the FMP. The FMP contained a monitoring program that was similar in content to a Five Year Strategic Compliance Plan. The monitoring program was not definitive as to how compliance would be delivered in the field, and relied on delivery to be identified in the Annual Work Schedules. Subsequently, a 'Forest Compliance Plan for the Moose River Unit' was written for the 1999-2004 period. The OMNR District Manager approved the Forest Compliance Plan on March 30th 2001. The FMP had no exceptions requiring monitoring. A silvicultural monitoring strategy was included in the FMP.

The 2003 CMRMU FMP contained detailed monitoring and assessment strategies that fulfilled FMPM requirements. The FMP identified AOC monitoring as a focus, and indicated that specific strategies were to be outlined in Annual Compliance Schedules. A Five-Year Compliance Strategy was written for the CMRMU and met the requirements outlined in the "Guideline for Forest Industry Compliance Planning". It was approved by the District Manager. The FMP had no exceptions requiring monitoring. A silvicultural monitoring strategy was included in the FMP.

OMNR wrote District "Annual Compliance Operations Plans" (ACOPS) for each year of the audit period. Those plans were complete and reflected the priorities for all compliance activities in the District. There are no specific numeric targets regarding inspection levels. When developing ACOPS the District is expected to assess a number of factors including;

- Level of forest management activity on the Unit.
- History of compliance on the unit.
- History of compliance by licence holders.
- Historic level of complaints.
- Risk to the resource.

Some Compliance Plans were not prepared and signed until part way through the fiscal year (e.g. the 2001-2002 Cochrane sub-unit annual compliance schedule was not submitted by Tembec until September 28th, 2001 and was not approved by OMNR until December 4th, 2001). However, at no time were licences issued or field operations initiated until approvals were signed.

Table 4 summarizes OMNR compliance inspection effort during the audit period.

TABLE 4. OMNR INSPECTIONS COMPLETED AND NOT-IN-COMPLIANCE (NIC) REPORTS DURING THE AUDIT PERIOD

Year	CMU Inspections (NIC)	MRMU Inspections (NIC)	CMRMU Inspections (NIC)
2000-01	19 (1)	33 (7)	
2001-02	9 (2)	43 (7)	
2002-03	14 (1)	14 (0)	
2003-04			35 (5)
2004-05			9 (1)

Based on a review of OMNR ACOPS and discussions with OMNR and industry staff during the audit, it is the auditor's opinion that the absolute levels of annual compliance activity and the degree of annual variation (Unit wide range from 9–52) reflect an inadequate level of compliance monitoring. OMNR staff acknowledged to the auditor that the overall level of inspections was inadequate due to staff shortages and a lack of trained staff.

The need for a higher level of monitoring was also supported by the 2000 IFA of the CMU, which provided recommendations related to increased field monitoring (e.g. snag retention, slash, temporary water crossings, completion of renewal and maintenance). The 2000 IFA of the MRMU also provided recommendations related to logging damage, rutting, site damage, wasteful practices and minimum inspection intensities.

Recommendation # 11:

The OMNR Cochrane District should significantly increase the number of compliance inspections that it carries out on the Cochrane Moose River Management Unit.

Table 5 summarizes industry compliance inspection effort during the audit period.

TABLE 5. INDUSTRY INSPECTIONS COMPLETED AND NOT-IN-COMPLIANCE (NIC) REPORTS DURING THE AUDIT PERIOD

Year	CMU Inspections (NIC)	MRMU Inspections (NIC)	CMRMU Inspections (NIC)
2000-01	NA	85 (7)	
2001-02	30 (9)	43 (0)	
2002-03	23 (6)	130 (2)	
2003-04			125 (4)
2004-05			80 (2)

The industry level of compliance activity ranged from a low of 73 inspections in 2001 - 2002 to a high of 153 inspections in 2002 - 2003.

On the basis of discussions with OMNR and industry staff during the audit, and the levels of harvest activity, it is the auditor's opinion that the level of monitoring carried out by Tembec and Norbord on the CMU, MRMU and the CMRMU was reasonable.

Tables 4 and 5 also document the rates of "Not in Compliance" found during OMNR and industry compliance inspections.

The rate of non-compliance reported by the industry decreased over the audit period from approximately 10% to 3%. Inadequate OMNR monitoring effort precludes a reliable comparison with the industry statistics, although non-compliance trends as recorded by OMNR also appeared to decline. The auditor believes that improved communication, training, and effort by the industry, including the adoption of EMS, and the use of Global Positioning Systems (GPS) contributed to the decrease in non-compliance levels.

The OMNR and industry often did not meet required timelines for the delivery of Forest Operations Inspection Reports (FOIRs). In 2004 - 2005, a Compliance Order for reporting was issued against Tembec for reports that were up 133 days late. In 2004 - 2005, 30 reports were late and some of those were for NIC situations. Some "In Compliance" reporting took up to 293 days and some NIC reports took up to 232

days. Norbord reporting was on time and met FIM requirements. OMNR reporting did not always meet FIM requirements. Some "In Compliance" reports took up to 85 days to be submitted and one NIC report took 39 days.

Recommendation # 12:

The Forest Industry and OMNR must meet compliance reporting requirements as stipulated in the Forest Information Manual.

Silvicultural assessment methods adopted on the forest included;

- Pre-treatment surveys.
- Assessments of regeneration success.
- Free-to-Grow surveys.
- Careful logging assessments.

A monitoring system and standard operating procedures (SOP) for silvicultural assessment was developed by Tembec. Field information was collected, filed, and archived and all staff were trained on the use and application of the system. Tembec reviewed the SOPs annually. Tembec staff made appropriate use of GPS technology and results of regeneration assessments were entered into a GIS database to update the FRI inventory.

The auditor concludes that Tembec had an adequate program to determine the effectiveness of silvicultural treatments and develop follow-up remedial action if required.

3.6.2. Annual Report

An Annual Report (AR) summarizes the forest management operations carried out during the preceding year. Annual reports are prepared for a 12 month period (April 1st - March 31st). There are two submissions, a spring submission due on or before April 15th and a fall submission due on or before November 15th.

The purpose of the AR is to document the annual implementation of forest management operations, and to monitor the progress towards achieving targets identified in the FMP. Annual Reports provide explanations and rationale for shortfalls and are used to update FRI data and silvicultural information systems. The information is also used to update provincial records. The Plan Author is responsible for the preparation of the AR, and the OMNR has responsibilities for specific components of the report.

FMPM content requirements for ARs require that the AR text provide explanations of any significant differences between the level of activity scheduled in the AWS and the level of activity that actually occurred. The text is also to discuss any emerging trends or issues. Generally, this did not occur early in the audit term, and later reports included only limited discussion. This observation was confirmed by the OMNR reviewer comments in the 2002-2003 Spring submission of the AR that indicated that industry "... be required to supply more detail in the AR specifically regarding information relating to difference between the proposed level in the AWS and forest management and actual level achieved". The reviewer also states "...the style and content of this annual report is consistent with all other past annual reports". The auditor review of that AR indicated that little explanatory information was provided. For example, it indicates that "...no artificial regeneration or tending treatments undertaken during this annual report year." No further explanation was provided.

During the audit period, ARs were submitted that were incomplete and that contained inaccuracies. With respect to AR report quality, the 2003-2004 AR was rejected and returned to the AR Author four times to address the same list of required alternations. The compliance portion of the report for which OMNR had responsibility was incomplete and did not include discussion text (e.g. NIC reports, the penalties, the levels of planned vs. actual reporting).

During the 2000 - 2003 period, there were no Annual Reports that met FMPM requirements for the Moose River sub-unit. The auditor reviewed internal OMNR correspondence that indicated that the Area Forester tried "...on numerous occasions" in 2001 - 2002 to get AR 12.2 prepared by OMNR staff. Additionally, the auditor located two identical AR 12.2 tables. One table was labeled for the year 2001 - 2002 and one labeled for 2002 - 2003. In 2002 - 2003, there was no text in the report by OMNR relative to Table AR 12.2. A note indicated that the table was unavailable.

Also of concern to the auditor was the District Manager's approval of Annual Reports when the Annual Report Tracking and Acceptance Sheet indicated that compliance reporting was not complete. For example, seven of the ten questions in the Annual Report Tracking and Acceptance Sheet for the Moose River 2002-2003 AR were checked as not being completed. However, the District Manager approved the uncompleted report approximately 13 months after it was initially due.

In the previous IFA audits of the CMU and MRMU there was a recommendation regarding Annual Reports, particularly in regard to compliance reporting. Recommendation # 14, of the 2000 CMU IFA directed that OMNR:

- Submit annual reports in accordance with the timelines.
- Include sufficient text to explain any significant differences between scheduled and actual activities.

- Complete Table AR 12.
- Complete the review of Annual Reports in a timely manner.

The Independent Audit Action Plan Final Status Report indicated that all the requirements for Recommendation # 14 (CMU IFA) had been completed. The auditor finds that this was not the case particularly with respect to compliance reporting and the requirements for explanatory text. The auditor is providing a recommendation similar to that provided in the previous IFA.

Recommendation # 13:

The OMNR Cochrane District Manager must ensure:

- 1) that Annual Reports contain sufficient text to explain any differences between scheduled and actual activities and include a discussion of any emerging trends and issues.
- 2) That AR Table 12 requirements are completed as per FMPM requirements.

The 2004 FMPM has new requirements for the preparation of ARs effective in 2005. Electronic versions of final approved documents are to be stored in the OMNR's Forest Information Portal.

3.6.3. Report of Past Forest Operations

The Report of Past Forest Operations provides public information on forest management operations and provides information to assist with future forest management planning.

The 1996 FMPM requires that an RPFO be prepared at the expiry of the plan term. The 1998 - 2003 RPFOs were required by April 1st, 2005. The RPFOs were not available for either the MRMU or the CMU and therefore were not available for auditor review. Local OMNR staff believed that the 2004 FMPM altered RPFO reporting requirements with the introduction of the Year Ten Management Unit Annual Reports.

OMNR legal advice was solicited and it was determined that the 1996 FMPM requirement for the RPFO was still in effect and that the RPFOs were required. OMNR direction indicates that "...revocation of the 1996 FMPM when the 2004 FMPM was approved does not relieve planning teams of the obligation to prepare an RPFO consistent with the 1996 FMPM".

The auditor therefore provides the following recommendation.

Recommendation # 14:

The OMNR Cochrane District Manager should ensure that a Report of Past Forest Operations is prepared immediately and submitted in compliance with 1996 Forest Management Planning Manual.

3.7. Achievement of Management Objectives and Forest Sustainability**3.7.1. Achievement of Management Objectives**

The IFAPP requires the auditor to examine and comment on the achievement of management objectives. Table 6(a) and 6(b) lists objectives from the 1998 CMU and MRMU FMPs, and the RPFO Author assessment of the achievement of the plan objectives.

As noted in noted in Section 3.6.3., RPFOs for 1998 - 2003 were not available for review. The auditor has provided an assessment of objective achievement based on available information included in the Trends Analysis Report, Annual Reports and the FMP. The 1993-1998 RPFOs were assessed for progress towards objective achievement of the 2003-2008 FMP. It is the auditor's opinion that the collective review of these documents provides a summary of the status of the achievement of management objectives on the Unit.

Moose River MU

The OMNR contracted some management functions on the unit to Tembec, and the company completed the 1993-1998 RPFO. The RPFO was submitted in May 2001, approximately 14 months late. Late submission of documents is further discussed in Section 3.5.2.

TABLE 6 (A). SUMMARY OF THE STATUS OF THE 1988-1993 AND THE FIRST 3 YEARS OF THE 1993-1998 MOOSE RIVER MANAGEMENT UNIT TMP

Objective	RPFO Author Comments and Notes
Harvest Objectives	
- Make available 280,000 m³ annually to the Cochrane sawmill and 10,000 m³ annually to the Cochrane veneer mill. - Develop volume tables for older age stands. - Promote full utilization. - Promote "best end" use.	- Conifer harvest level objectives were substantially met. Harvest levels for hardwoods were 54% of planned. - No volume tables were developed. - Significant progress towards full utilization of the resource was achieved. - Wood exchanges were promoted.
Renewal Objective	
- Regenerate 70% of harvested area through careful logging and artificially regenerate 900 hectares annually. - Identify and reclassify backlog areas. - Monitor success of careful logging.	- Seventy percent of the area was treated by careful logging techniques. Targets for artificial regeneration were over achieved by 10%. - Artificial regeneration averaged 1000 hectares per year. - Backlog area identification and reclassification was completed. - Survey of careful logging was completed in 1996.
Environmental Quality Objective	
- To eliminate, minimize or mitigate negative impacts on the environment.	- Improvements were made in both forest operations and planning.
Integrated Resource Management Objectives	
- Plan timber management activities to optimize benefits for all forest users while reducing conflicts.	- This objective was not met. OMNR developed a District strategy to address increasing land use disputes.

The RPFO Author reported that 70% renewal of lowland sites could be successfully regenerated with careful logging and that the target of 900 hectares of artificial regeneration was overachieved by 10%. The importance of reclassifying backlog areas was stressed in both the 1988 - 1993 and the 1993 - 1998 plans. The RPFO Author indicated that a major impediment to the attainment of objectives in the 1993 - 1998 plan was a land use dispute between the industry, OMNR and First Nations.

The RPFO for the Cochrane Management Unit reported on the 1993 - 1998 term. It was submitted in September 2001, approximately 18 months late. The RPFO for the CMU for the 1993 - 1998 period contained minimal explanatory text, making it difficult for the auditor to understand and draw conclusions.

TABLE 6 (B). SUMMARY OF THE STATUS OF THE 1993-1998 COCHRANE MANAGEMENT UNIT MANAGEMENT PLAN OBJECTIVES

Objective	RPFO Author Comments and Notes
Harvest Objective	
- Annually produce 45,000m³ of conifer and 48000m³ of hardwood. - Ensure the full utilization of all merchantable species.	- Sixty-eight percent of planned harvest depletion targets were achieved. - Seventy-six percent of the planned conifer harvest was achieved. Forty-eight percent of planned hardwood harvest objective was achieved.
Integrated Resource Management Objective	
- Optimize benefits from the forest while minimizing conflicts.	- Formal consultation requirements were completed as required. - Planning conformed to the Cochrane District Land Use Guidelines (1983). - The strategy for remote tourism was successful.
Environmental Objective	
- Conduct all operations in a manner consistent with the Class Environmental EA for Timber Management Planning on Crown Lands in Ontario.	- Generally this objective was met, since fish and wildlife values were identified and protected.
Renewal and Maintenance Objective	
- Naturally regenerate 40% of conifer areas. - Artificially regenerate 52% of the area (1505 ha). - Conduct FTG assessments on 2,000 ha - Tend 1,500 ha.	- Achieved 32% of natural regeneration target. - Achieved 68% of the artificial regeneration target. - Site preparation targets were exceeded by 60%. - Spray targets were exceeded by 26%. - Six percent of the planned FTG assessments were completed.

Table 7 provides a summary of the status of the 2003 - 2008 CMRMU FMP objectives and provides auditor comments, recommendations, and suggestions. This status report only provides an assessment for the 2003 - 2005 period.

TABLE 7. SUMMARY OF THE STATUS OF THE FIRST THREE YEARS OF IMPLEMENTATION OF THE 2003-2008 FMP OBJECTIVES

FMP Objectives	Progress towards Achievement (Yes/No/Partial)	Auditor Comments
Conservation of Biological Diversity (Forest Diversity/Silviculture)		
Ensure that current biological diversity of the forest is not significantly changed and where necessary and practical, is restored. (Policy Framework for Sustainable Forests).	Y	Review of biodiversity elements of the FMP indicated that planned forest diversity, wildlife habitat and natural disturbance patterns are being adequately addressed.
Maintain preferred/marginal habitat for the featured regional species within the bounds of natural variation as portrayed in the results of the Strategic Forest Management Model.	P	The selected management alternative maintains wildlife habitat within the bounds of natural variation. Limited field observations (2 years) indicated that AOCs and guidelines are being properly implemented. An assessment of partial achievement was provided because only two years of the plan have been implemented.
Ensure that harvesting practices do not reduce the long-term levels of Caribou habitat found on the Moose River Sub-unit.	P	The selected management alternative maintains habitat for caribou. An assessment of partial achievement was provided because there is limited information on caribou in northeastern Ontario from which to draw conclusions.
To provide suitable marten habitat on the Cochrane-Moose River Management Unit.	Y	Marten core areas were identified in the planning process. Guidelines were applied with a tree height modification. Application of the guidelines improved over past plan terms.

Ensure the genetic diversity of trees is ensured.	Y	Genetic diversity of forest trees is ensured through the application of CLAAG and HARP techniques. Forest renewal is supported by appropriate seed collection.
Maintenance and Enhancement of Forest Ecosystem and Productivity Objectives (Silviculture)		
Provide for the long-term health and vigour of Crown forests by using forest practices that, within the limits of silvicultural requirements, emulate natural disturbance patterns and landscape patterns. (CFSA, PFSF).	Y	The value of natural disturbances has been recognized and implemented in the plan. The use of HARP and CLAAG on peat land sites is consistent with this objective. Field observations indicate there is good natural regeneration.
Develop and implement a roadside slash reduction program for the Cochrane-Moose River Management Unit.	P	A slash pile and pile burning program has been implemented on the CMRMU. The program was concentrated on areas where artificial regeneration was planned, where access was present, and areas that were most visible to the public. Pile burning met with mixed results due to weather conditions and pile conditions (e.g. excessive soil in the piles, level of compaction). Other options for slash management were being considered (i.e. cut-to-length harvesters) and evaluated as part of Tembec's EMS.

Keep forest ecosystems productive.	P	Progress is being made with respect to the survey and classification of NSR and B&S areas. A partial assessment has been provided because of the area of land classified as depleted which requires survey to determine its regeneration status. Careful logging programs have been implemented. SOPs have been prepared and were implemented.
Maintain the productivity of stands treated with careful logging and HARP techniques.	Y	Post harvest surveys are being conducted. Audit field site inspections that sites are being adequately renewed. High floatation equipment is used to minimize site damage. Harvesting is primarily scheduled in the winter thus protecting the site and residual growth.
Conservation of Soil and Water Resources (Other Values)		
Minimize the impacts on water quality and aquatic habitat within areas of harvest operations.	Y	Water crossing installations are well implemented and minimal infractions are occurring. Appropriate SGRs are applied. AOC prescriptions are well implemented. Forest workers have received related training.
Forest Ecosystems Contributions to Global Ecological Cycles (Social)		
Ensure that the available forest is protected from sustained deforestation or conversion to other uses.	Y	SFMM was used to set sustainable harvest and renewal targets. SGRs have been established and used. NSR lands are being treated. Harvest targets have historically been underachieved.

Multiple Benefits to Society (Other Values, Economic)		
Supply industrial and consumer wood needs while maintaining forest sustainability, and to realize a predictable, continuous, and consistent flow of roundwood from the Cochrane-Moose River Management Unit.	P	SFMM was used to establish sustainable wood supplies. Harvest levels have been underachieved for the past three management terms. Long term SPF wood supply targets were created and are below levels allocated for the first term of the FMP. The maximum AHA was allocated in the first term.
Enhance the furbearer habitat on the unit.	P	The plan target was to manipulate browse species for furbearing animals. The auditor did not observe specific habitat manipulations for furbearers. However, marten guidelines were adhered to and AOCs were in place adjacent to riparian habitats. The SMA it provided habitat for the selected wildlife species that were within the natural bounds.
Ensure the appropriate protection of non-timber values identified on the landbase.	Y	NRVIS database has been updated. FN consultations have occurred. Discussions have occurred with tourist operators to protect identified values.
Accepting Society's Responsibility for Sustainable Development (Social)		
Relationship building with First Nation Communities.	P	Annual meetings are held with First Nations. All Tembec harvesting operations are conducted by FN companies. Moose Cree First Nation elected not to engage in the forest management planning process.

Ensure the protection of other values on the land base.	Y	Inventories were conducted, NRVIS database was updated. AOCs were appropriately applied. Consultation with tourism outfitters has occurred. The plan is consistent with the Cochrane District Remote Tourism Strategy. First Nation consultation process included the production of native values maps and background reports.
Conduct forestry practices in a manner such that all resource users may gain benefit from the forest, while recognizing that compromises need to be made to ensure the viability of resource based activities.	Y	The plan is consistent with the Cochrane District Remote Tourism Strategy. A full range of AOCs were implemented. The LCC is involved in reviewing amendments.
Ensure that appropriate updates have been made to the planning inventory.	Y	The FRI was updated for the preparation of the plan. NSR and B&S lands are surveyed and results are categorized in the FRI. Results are incorporated in the GIS.
Conduct forest management activities on the Unit in such a manner that it contributes to Tembec's corporate objectives of Forest Stewardship Certification (FSC).	Y	Tembec's Forever Green Policy is consistent with FSC principles.

3.7.2. Review of RPFO Assessment of Sustainability

A Report of Past Forest Operations was not submitted for the 1998 - 2003 plan period. A recommendation to address this issue is provided in Section 3.6.3. Sustainability issues are addressed in 3.7.1.

3.7.3. Review of the Comparison and Trend Analysis of Planned vs. Actual Forest Operations Report

The purpose of the Comparison and Trend Analysis of Planned vs. Actual Forest Operations Report is to provide a comparison and trend analysis of planned vs. actual operations over time in order to provide an interpretation of the current state of the Cochrane Moose River Management Unit relative to its historical state.

Reporting of planned vs. actual harvest volumes, planned vs. actual depletion areas, planned vs. actual renewal and maintenance is based on information found in the Report of Past Operations (1988 - 1993, 1993 - 1998), the 1998 Forest Management Plans, and data from Annual Reports. An RPFO for 1998 - 2003 was not prepared.

Tembec completed the Trends Analysis Report as part of its service agreement with OMNR. The auditor was informed that the Report was not reviewed by OMNR prior to the submission as an IFA document. The auditor was informed that OMNR disputed some of the information contained in the Report (Section 3.1.) However, the Report was not altered by either OMNR or the service provider and the auditor used the information provided.

Significant trends in the report are summarized as follows:

1. There has been significant change in the total area of Crown managed forest land over the three planning terms reported (1993 - 1998, 1998 - 2003, 2003 - 2008). The total area of managed Crown forest production forest land had declined from 521,248 ha (1998 - 2003) to 466,524 ha (2003) on the MRMU and from 128,455 ha (1998 - 2003) to 101,670 ha (2003) on the CMU. The reduction in area was principally attributed to administrative boundary changes and removals of area by the OLL process.
2. The area classified as "barren and scattered" (B&S) and "not sufficiently regenerated" (NSR) declined on both management units over the planning term. A trend is emerging where the area of land classified as "depleted" is increasing. The area classified as depleted has increased by a magnitude of 5% on the MRU (39,764 ha (1998) to 42,068 ha (2003)). For the CMU the area of depleted lands increased by 33% (10,102 ha to 15,098 ha) over the same period.
3. For both the MRMU and the CMU there was an underachievement of harvest targets. Over the three plan terms planned vs. actual harvest area and planned vs. actual harvest volumes were overachieved for jack pine forest units and significantly¹⁴ underachieved for poplar and birch forest units. Poor market conditions, First Nation issues, low wood quality and forest

¹⁴ The terms "significantly" and "significant" are used by the Trends Analysis Report Author. The auditor's assessment is that the use of the terms is indicative of variances in the order of 30% or more.

management decisions which concentrated the harvest in other management units which were approaching the end of their terms were reasons attributed for the underachievement. Harvest targets for spruce forest units were underachieved by 4% in 1993-98, in 1998-2003 spruce harvest targets were underachieved by 48%. Reasons for the underachievement of plan targets were forest management decisions to harvest volumes from other Forests which were near the end of their terms, First Nations issues, poor markets for some species, land removals from the unit by the OLL and mill closures.

4. Total planned renewal targets have been underachieved over the three planning terms. Achievements were variable for artificial and natural regeneration with a significant overachievement in artificial renewal in the 1998 - 2003 term due to availability of silvicultural funds. In general, natural regeneration in early plan terms underachieved planned targets but improved with the implementation of careful logging on the units. Lower than planned natural regeneration was also reflective of the underachievement of harvest targets, particularly for poplar forest units.
5. For the 1990 - 1995 period 89% of surveyed areas were declared successfully regenerated.

Total Area of Crown Managed Land

Moose River Management Unit

The total area of Crown managed forest land increased from 348,884 ha (1993 - 1998) to 521,248 ha in the 1993 - 1998 plan term. The increase in total production forest area was a result of the elimination of previous plan working circles (e.g. accessible and inaccessible in the long term).

The area of Crown managed forest land declined to 466,524 ha in the 2003 - 2008 plan term. The decline in area is attributed to the implementation of the Cochrane District Remote Tourism Strategy that removed 67,920 ha, the 2003 OLL process and an administrative removal of a portion of the landbase to another SFL, which further reduced the landbase to 466,524 ha.

There had been a significant decrease in the area of B&S and NSR area over the three plan terms (1993, 59,346 ha, 1998, 49,051 ha; 2003, 12,818 ha). The area of depleted land increased from 39,764 ha in the 1998 plan term to 42,068 ha in the 2003 term.

Cochrane Management Unit

During the three plan terms, the area of Crown managed production forest declined to 101,670 hectares. This decline was attributed to removal of portions of the unit in the vicinity of the town of Smooth Rock Falls and Inglis Township.

There was a significant decrease in the area of B&S and NSR land between the plan terms due to the reclassification of lands in the FRI updating processes in the 1998 and 2003 FMPs. (1993, 33,934 ha; 1998, 19,423 ha; 2003, 7,003 ha). Lands classed as depleted have increased from 4,367 ha (1993) to 15,098 ha in 2003.

Forest units remained relatively constant for both the CMU and MRMU during the 1993 and 1998 plan periods. During those periods, forest units were described mainly on the basis of working group and site class. The units changed considerably with the implementation of standard units in the 2003 planning term.

Planned vs. Actual Harvest Volumes

Moose River Management Unit

There was a slight decrease in the overall planned harvest volume from 1993 to 1998 to 2003 with an increase in conifer harvest volume and a decrease in planned hardwood volumes. Over the 1993 and 1998 planning periods, actual volumes harvested were 87% and 54% of planned. Harvest levels in the current plan are currently below planned levels.

During the 1993 plan term, jack pine and fir harvest volume targets were overachieved. The harvest volumes for spruce achieved 95% of the planned target. Significant harvest shortfalls were experienced in poplar and birch working groups with less than half of the planned poplar volume harvested (45%). Of the planned target for white birch (10,588 m³), only 14 m³ were reported as harvested. Reasons for the shortfall were attributed to discrepancies between FRI predicted volumes and actual volume realized. A significant area was also left unharvested due to a "bump-up" request by remote tourism operators.

In 1998, jack pine harvest volumes were overachieved (114% of planned) and spruce (52%), poplar (39%), other conifer (0%) and birch harvest volumes (0%) were underachieved. Reasons for the underachievement of plan targets were forest management decisions to harvest volumes from other Forests which were near the end of their terms, First Nations issues, poor markets for some species, land removals from the unit by the OLL and mill closures.

For the 2003 to 2008 plan term, harvest volumes are only reported for 2003 / 2004. Volumes are significantly below planned levels due to poor markets and a shut down at the Cochrane mill.¹⁵

Cochrane Management Unit

Planned harvest volumes decreased between the 1993 and 1998 plan terms. Planned poplar volumes declined by approximately 50% and planned spruce harvest volumes by 19%. The Report Author attributes these declines to a decrease in yields and a decline in the amount of mature and over-mature forest area. The 2003 FMP shows an increase in planned harvest volumes from 82,280 m³ in the 1998 FMP to 104,624 m³ in the 2003 FMP.

During the 1993 and the 1998 plan terms, there was a significant underachievement of planned harvest volumes for both conifer and hardwood. Overall, the 1993 term harvested 65% of the planned volume, and the 1998 term achieved 70% of planned harvest volumes. Poplar harvest levels were significantly below planned volume levels (48%) as holders of Forest Resource Licences (FRLs)¹⁶ did not harvest planned volumes.

Actual poplar harvest volumes remained well below planned harvest levels in the 1998 plan term (62% of planned). The Report Author indicated this failure to achieve planned target was due to an underachievement in harvests levels in the mixed conifer and mixedwood forest units.

For the 2003 plan term, only one year was reported and hardwood levels were below planned targets. The plan target for spruce was overachieved (actual volume harvested 39,327m³ vs. planned 36,689 m³).

Planned vs. Actual Harvest Areas

Moose River Management Unit

In the 1993 - 1998 plan term, actual vs. planned harvest areas were underachieved by 23%, largely due to a bump-up request, which delayed planned harvesting. The report text indicates a significant underachievement occurred in spruce forest units.

In the 1998 - 2003 term, the actual area harvested was significantly less than planned. By-pass areas were also increased due to significant inaccuracies in the

¹⁵ Continuing pressure as a result of poor lumber prices, and the US softwood lumber countervail duties resulted in the short term shut down of the Cochrane sawmill that in turn temporarily reduced demand for fibre from this forest.

¹⁶ The Comparison and Trend Analysis of Planned vs. Actual Forest Operations Report references District Cutting Licenses. The current term is Forest Resource License, in this report the auditor uses the correct term.

FRI and small wood size. Most of the underachievement occurred in the spruce forest units.

To date, actual harvest levels are significantly below average planned annual levels. The underachievement is reflective of poor markets, management decisions to harvest other areas and a temporary shut down of the Cochrane mill.

Cochrane Management Unit

Significant underachievement of planned vs. actual harvest area occurred during the 1993 - 1998 plan term (70% of planned). FRLs did not harvest the volumes anticipated during the plan term (see Section 3.4.2.).

In the 1998 term, a significant under harvest occurred (20% underachievement) as several of the licensee's did not harvest their full allocation. In the current plan term actual harvest levels are below planned as many of the independent licensees chose not to harvest on the unit in 2003 - 2004. This circumstance is discussed in Section 3.4.2.

Renewal, Tending and Protection Operations

Moose River Management Unit

Planned regeneration for the 1993 - 1998 plan terms achieved 84% of planned levels, although there was wide variation in the actual and achieved targets for natural and artificial regeneration.

The 1993 - 1998 FMP forecasted that 70% of the areas harvested would regenerate naturally. Natural regeneration for the 1993 to 1998 plan term achieved 50% of planned levels. The RPFO noted that the status of natural regeneration was incomplete and only reported in the 1996 - 1997 and 1997 - 1998 annual report.

In the 1993 - 1998 term, artificial regeneration was significantly above planned levels (280%). Actual planting exceeded plan levels due to the fact that increased funding was made available for renewal efforts. Planned seeding levels and site preparation levels also exceeded planned levels due to increased funding availability. Tending operations achieved 87% of planned targets with the main shortfall being that 700 ha of prescribed burning were not undertaken. No protection activities were reported during the term.

During the 1998 - 2003 plan term, actual renewal targets achieved 76% of planned targets. Actual natural regeneration targets achieved 79% of planned targets and artificial renewal efforts achieved 69% of planned targets. The shortfall in planned vs. actual natural regeneration was largely attributed to shortfalls in the area harvested.

The site preparation program underachieved plan targets for mechanical site preparation (32%). Chemical site preparation and prescribed burning were not planned; however, a prescribed burn (162 ha) and 356 ha of chemical site preparation were completed. The aerial spray program achieved 63% of the planned target (4,657 ha). No other tending treatments were planned for the period. Planned site preparation and tending targets were below average annual plan targets for the current plan period.

A trend in regeneration could not be determined for the current plan as only one year is reported.

Cochrane Management Unit

Natural regeneration for the 1993 to 1998 plan term achieved 60% of planned levels. The area of natural regeneration had to be estimated in the RPFO due to inconsistencies in reporting of naturally regenerated areas. During the audit period inconsistencies in reporting were corrected.

For the 1998 - 2003 plan term, natural regeneration exceeded targets established in the FMP as careful logging became more prevalent on the unit. A trend in regeneration cannot be determined for the current plan as only one year is reported. In this period actual numbers were combined as the units were amalgamated.

Artificial renewal treatments in the 1993 - 1998 plan term were above planned levels (200%) due to the availability of funding, seedlings and seed. Mechanical site preparation was overachieved (160%) and reflected an increase in the number of sites requiring planting. Aerial tending targets were overachieved (126%). No prescribed burning was undertaken during the period.

For the 1998-2003 term, artificial regeneration levels were significantly underachieved (37%). Site preparation and tending were also underachieved at 7% and 25% of planned levels. The Trends Author reported that aerial tending targets were not achieved because public notices for spraying were not advertised in time for the program to be conducted.¹⁷

In the 2003 FMP, artificial regeneration was forecasted to represent approximately one third of the renewal effort.

Tables 7A and 7B provide a summary of the area harvested and assessed for regeneration success for the period of 1990 - 1995. For the MRMU, 79% of the area depleted was surveyed for regeneration success and 3,532 ha remained unsurveyed. NSR lands occupied 1,568 ha. On the CMU, 3,884 ha were reported

¹⁷ This issue discussed in Section 3.4.4. OMNR disagreed with this statement in the Trends Report.

as harvested and 3,393 ha were reported as surveyed. Approximately 89% of the surveyed area was declared as satisfactorily regenerated.

3.7.4. Achievement of Forest Sustainability

Assessment of forest sustainability is an important component of the Independent Forest Audit. Recognition of the complexity and dynamic nature of forest ecosystems has required that forest management focus on the protection and management of entire ecosystems, as well as timber yields. Sustainable forest management (SFM) involves ecosystem concepts including the place of people in those ecosystems. *The Crown Forest Sustainability Act*, 1994, defines sustainability as, "Long term Crown forest health", and forest health as "... the condition of a forest ecosystem that sustains the ecosystem's complexity while providing for the needs of the people of Ontario". In practice, the continued existence and healthy functioning of all forest ecosystems and values is the common foundation for initiatives that measure and monitor SFM.

The *Crown Forest Sustainability Act* requires a determination of the forest sustainability of Crown Forests, based on two main principles:

1. Large, healthy, diverse and productive Crown Forests and their associated ecological processes and biological diversity should be conserved.
2. The long term health and vigor of Crown Forests should be provided for by using forest practices that, within the limits of silvicultural requirements, emulate natural disturbances and landscape patterns while minimizing adverse effects on plant life, animal life, water, soil, air and social and economic values including recreational values and heritage values.

At the management unit level, five criteria (Biodiversity, Soil and Water Quality, Forest Condition and Ecosystem Productivity, Multiple Benefits to Society, and Accepting Society's Responsibility for Sustainable Development) are commonly used in the determination of forest sustainability.

Biodiversity

The SMA in the 2003 FMP had the highest rating for the indicators of sustainability. The SMA provided habitat for selected wildlife species within natural bounds of variation. Landscape diversity was within the bounds of natural variation and planned harvesting showed movement towards the emulation of natural disturbance patterns.

CLAAG and HARP harvest strategies retained stand vertical structure and more in-stand characteristics (i.e. ground cover) than traditional clearcutting systems. The technique retains in-stand biodiversity as ground vegetation is not disturbed in the

residual strips. Older age residuals are retained on the cutover providing habitat elements.

Biodiversity criteria were properly addressed in the planning process. The auditor notes information with respect to caribou is limited. Efforts were being made to address this shortfall (Section 3.3.5.).

Soil and Water Conservation

Net primary productivity (NPP) and water yield are expressions of landscape processes, which are measurable indicators of forest sustainability. Base values for net primary productivity and water yield were calculated for the Unit. These values will be compared to future values as a gauge of forest sustainability. The scheduling of harvest on wet sites for winter logging and the use of appropriate equipment on sensitive sites adequately protected soils and sites.

Forest Condition and Ecosystem Productivity

Proposed land use on the forest and the selected management alternative in the Plan are consistent with the maintenance of ecosystem productivity.

During the audit period the total productive Crown forest area did not decrease. The relative proportions of forest units have not significantly changed. Portions of the CMRMU have been maintained in mature and overmature age classes.

The area classified as "barren and scattered" (B&S) and "not sufficiently regenerated" (NSR) declined on both management units over the planning term. A trend is emerging where the area of land classified as "depleted" is increasing.

While the auditor recognizes that for this Unit the time required to reach free to grow can be up to 12 years, the auditor is concerned with the amount of area classified as depleted. It is critical that areas classified as depleted continue to be rationalized and tracked to maintain a current and accurate forest inventory.

Multiple Benefits to Society

The Selected Management Alternative maintained a flow of benefits to society from the CMRMU. In summary:

- It provided habitat for the selected wildlife species that were within the natural bounds of variation.
- It provided available harvest areas that were considered to be sustainable and the percent of available harvest area actually utilized was expected to be 100%.

- It had a relatively good balance of timber and non-timber objectives, which provided a favorable management alternative and socio-economic ranking.
- It provides stable social and economic benefits including stable revenues to the Crown, stable jobs, maintained access and protection for fish and wildlife values.

Harvest levels have been underachieved for the past three planning terms (Section 3.4.2).

Accepting Society's Responsibility for Sustainable Development

The criteria related to accepting society's responsibility for sustainable development have been partially met.

While the planning process met legal requirements and resulted in plans consistent with forest sustainability, the manager's responsibilities for effective implementation and monitoring of these plans have not been met. This could affect long term forest sustainability.

First Nations are conducting harvesting for Tembec. First Nations, with the exception of the Moose Cree First Nation, increased their formal involvement in the forest management planning process (i.e. the identification and protection of native values). The Moose Cree First Nation elected to not participate in the formal native consultation process. However, the Moose Cree did ensure their issues were brought to the attention of the Plan Author through the normal public consultation process and individual band member initiatives. A number of agreements and initiatives between OMNR, Tembec and First Nations provided increased native involvement in forest management operations. These initiatives substantially met EA Condition 77.

The OMNR has not adequately monitored the delivery of forest management activities or reports by its service provider; there is confusion and disagreement between OMNR and its management contractors; OMNR compliance monitoring was inadequate; response to the 1995 - 2000 IFA audit recommendations was two years late, and some remedial actions have not been fully implemented.

Conclusion

The auditor concludes that the five indicators of forest sustainability listed in the FMPPM have been substantially met.

- The SMA is consistent with forest sustainability.

- Soil and water values are being maintained.
- The area of productive Crown forest land has been maintained.
- The forest is being renewed.
- Benefits to society are being derived from the CMRMU.

The auditor has a concern however, that inadequate administration of the CMRMU, combined with poor reporting, and record maintenance, if allowed to persist, poses a longer term threat to forest sustainability. Without proper records the forest manager cannot track and assess the effectiveness of forest management activities.

3.8. Contractual Obligations

Each of the plans generated sufficient renewal funds to carry out the required renewal and tending activities to meet management objectives. The auditor was informed that the Special Purpose Account (SPA) is designed to ensure that funds are available during the year to pay outstanding bills and also to be able to carry out one year of silvicultural treatments if there is no harvest or a company has failed. During the field audit, the SPA contained in excess of \$6,000,000.00 while the required minimum balance was only \$1,500,000.00. The Cochrane OMNR indicated that the reason for the large balance was their concern with respect to a large area with uncertain renewal status (NSR/B&S/Depleted). As well, Corporate OMNR had concerns with declining SPA contributions due to an increasing provincial trend towards natural regeneration. The auditor was informed that the OMNR and companies have reduced the annual revenues submitted to the SPA. For 2004 – 2005, the companies did not submit any money and for 2005 - 2006 there will be a reduced charge. The auditor was concerned that there was an excessive amount of funds accumulating in the account; however, the issue is being managed by the OMNR.

A requirement of the IFAPP is that the field audit assesses compliance with the Forest Renewal Trust- Specified Procedure Report (SPR). Because this is a Crown management unit the OMNR retained responsibility to manage the SPR. The auditor sampled 54% of the SPR sites submitted by Tembec to the OMNR for payment of eligible silvicultural work. All sites with the exception of Project AS-14 (03) had work completed as described and were accurately mapped. The audit field inspection determined that Project AS-14 (03) had an area that was incorrectly mapped as treated. This was a relatively small area and the auditor does not feel it warrants a recommendation for reimbursement. However, the issue of OMNR not adequately monitoring the work of contractors is discussed in Section 3.1 and a recommendation is provided.

Table 8 summarizes the level of achievement of contractual obligations as required by the IFAPP.

TABLE 8. SUMMARY OF CONTRACTUAL OBLIGATIONS AND AUDITOR COMMENTS ON THE LEVEL OF ATTAINMENT OF THE CONTRACTED OBLIGATIONS

Contractual Obligation	Level of Attainment
1. Maintain minimum balance in the Special Purpose Account.	The SPA account balance greatly exceeded the required minimum balance. This issue is discussed in Section 3.8.
2. Maintain records including maps of all activities that were funded from the SPA.	Records and maps were maintained.
3. Assess harvested areas to determine whether they meet standards in the SGRs.	Harvested areas were in accordance with the SGRs.
Maintain records of the assessments for future audit and prepare stand descriptions for entry into the FRI.	Records of assessments are maintained.
4. Prepare an Action Plan responding to Audit Recommendations within one or two months of receiving the final audit report.	Action Plans were prepared approximately two years late.
Prepare a status report within two years following approval of the Action Plan.	The CMU Status Report was submitted on time. The MRU Status Report was approximately 6 months late. This issue is discussed in Section 3.6.2.

Progress on Recommendations from Previous Audits

Independent Forest Audits of the CMU and the MRMU were completed for the 1995 – 2000 period. The OMNR was responsible and accountable for the development of the required Action Plans to address the recommendations contained in the two audits. The OMNR Cochrane prepared the Action Plan for the Cochrane MU and Tembec, under contract, prepared the Moose River MU Action Plan. An Action Plan must be prepared within two months of the receipt of the final audit report. As well, an Action Plan Status Report is required to be completed within two years following approval of the audit Action Plan by the OMNR. The auditor determined that the required Action Plans for the CMU and the MRMU were submitted approximately two years late.

The OMNR was also required to produce Status Reports on the implementation of the Action Plans. The Action Plan Status Report for the CMU was submitted within a week of the due date. However, the Action Plan Status Report for the MRMU was approximately 6 months late. The auditor concluded that the Action Plans required

for the Independent Audits of the MRMU and CMU received low priority within the OMNR Cochrane District. Due to the approximately two-year delay in submitting Action Plans the Final Status Reports were only in place a few months before the initiation of the 2005 Independent Audit.

The IFAs and the required follow-up actions are critical to the maintenance of public confidence that their forests are being properly managed. The inadequate OMNR response to this legislated requirement concerns the auditor and a recommendation is provided to address this issue.

Recommendation # 15:

The District Manager needs to ensure that staff adheres to information requirements and timelines for the Independent Forest Audit.

The Cochrane MU and the Moose River MU each had Independent Forest Audits in 2000 for the 1995 - 2000 period. Table 9 reports on the progress on recommendations from the previous audits.

The previous IFAs of the CMU and MRMU resulted in 16 recommendations for the CMU and 26 recommendations for the MRMU. Progress had been made in responding to the recommendations on both sub-units. Important recommendations specific to values mapping updates, training, and record keeping were substantially met. However, other important recommendations relative to the reporting and compliance were not satisfactorily addressed.

For the CMU, the previous IFA recommended (Recommendation #12, Table 9) that "...renewal and maintenance activities, remedial treatments and surveys are completed as required by the FMPM." The auditor determined that this recommendation had not been fully implemented. As discussed in Section 3.4.3 OMNR did not carry out its silvicultural responsibilities in much of the 1998 - 2003 plan period, particularly with respect to planned artificial renewal targets. The CMU IFA also required that ARs be completed and submitted as required by the FMPM (Recommendation #14). The auditor determined that AR tables reporting compliance activities were incomplete or missing and that required explanatory text in the ARs was limited. The IFA required that RPFO standards conform to FMPM requirements (Recommendation #15). While the auditor was informed of confusion with respect to RPFO reporting requirements with the transition to the 2004 FMPM, the fact remains that RPFO were required and were not completed. A recommendation was provided to move immediately to an SFL on the unit, and that did not occur (Recommendation #16).

For the MRMU, Recommendation #17 of 2000 IFA required OMNR to initiate discussions with industry staff to standardize the interpretation of non-compliance.

The auditor concluded that the OMNR did not conduct enough compliance inspections to determine if the problems identified in the previous IFA had been resolved. A review of 2000-2004 compliance records indicates that the OMNR did very few inspections across the CMRMU. Recommendation #18 and #24 directed OMNR staff to ensure that AR tables and summary reports were fully completed. The auditor concluded that AR reporting did not meet requirements in the audit period.

The auditor concluded that the OMNR response to the previous IFA was unduly late. Response to some of the recommendation on reporting was inadequate. Some assertions contained in the Status Report were incorrect. The following recommendation is provided to address these issues.

Recommendation # 16:

The Cochrane District Manager must action the outstanding recommendations from the previous IFA for completion within 6 months of the date of the submission of the 2005 IFA Report.

TABLE 9. ACTIONS REPORTED BY THE OMNR IN RESPONSE TO THE 1995-2000 INDEPENDENT FOREST AUDIT RECOMMENDATIONS FOR THE CMU AND THE MRMU.

Rec #	1995-2000 IFA Recommendation Cochrane MU	Status Report on Recommendation / Action	Auditor Observation
1	OMNR should display statements about its commitment to sustainable resource management in public view, provide easy access to written or electronic information, ensure that all staff members are familiar with this material, and share this information with the LCC.	Material has been displayed. Communications are ongoing.	Sustainability statements were posted in the Cochrane OMNR office. Information had been circulated to staff and presented to the LCC.
2	OMNR must continue to record and retain all discussions of the Planning Team during its term, as required by the FMPM.	Completed for the 2003 FMP.	Planning team records were retained.

3	OMNR must ensure that adequate documentation is available to explain the decisions made regarding fish and wildlife values on the MU.	Completed.	Documentation and explanations were on file.
4	OMNR must develop and implement a strategy to help identify and protect the nests of hawks and owls within the Unit to fulfill the requirements of the Forest Operations and Silvicultural Manual.	Completed. Values recorded for the 2003 FMP.	Documentation was on file.
5	OMNR should implement an improved training program to enhance operating practices with special attention paid to skidding practices and the application of CLAAG.	A training program was implemented. Licence conditions were developed. Monitoring of CLAAG in accordance with the Annual Compliance Plan and SOPs.	Discussions with licencees and record review indicated training had been completed.
6	OMNR must develop a system (including training, implementation and monitoring) to ensure the appropriate retention of snags and cavity trees in harvested areas.	Training was completed by MNR and industry.	The auditor confirmed training had been carried out. Monitoring was ongoing. Field inspections indicated retention guidelines were being adhered to.
7	OMNR should develop and implement a strategy to ensure that more downed woody debris remains at the stump.	SOPs were developed.	The auditor determined a strategy was in place and being implemented.
8	OMNR should develop and implement a strategy to reduce the area occupied by slash piles.	Staff training, SOP development and a slash disposal action.	The auditor determined that Tembec was actively working on this issue.

9	OMNR must ensure that temporary crossings are constructed and removed as required to enable the free movement of fish and water during the snow-free season.	Provision of terms and conditions on licences. FOCIS reports.	The auditor inspected a sample of temporary crossings and confirmed they had been removed.
10	Effective forest operations prescriptions must be written and implemented for all sites on the Unit.	Completed in the AWS. Follow up with FOCIS and ACOP Review reports.	The auditor confirmed appropriate prescriptions were written and a sample was investigated to ensure implementation in the field.
11	OMNR must adopt and implement a plan for surveying the effectiveness of CLAAG and include remedial Action Plan.	A strategy was completed. A status report on backlog and harvest areas with CLAAG prescriptions was completed.	Tembec is monitoring the effectiveness of CLAAG.
12	OMNR must carry out management responsibilities for the Unit by ensuring that all required renewal and maintenance activities, remedial treatments and surveys are completed as required by the FMPM.	Completion date of 2003.	An auditor review of records and a sample of activities in the field indicated some significant FMPM requirements were not adhered to. During the period 2001-2002 little silvicultural work was undertaken.
13	OMNR should keep a current record of staff education and training.	Completed in 2003.	The auditor observed the training records.
14	OMNR must complete and submit Annual Reports as required by the FMPM.	Reports now completed.	The auditor determined the quality of Annual Reports did not meet required standards.

15	OMNR must ensure the RPFO standards as outlined in the FMPM are met and that future RPFOs are written to a standard that provides the required information, analysis and recommendations upon which effective and timely forest management planning decisions can be made.	Complete.	No RPFO was completed for the 1998-2003 FMP.
16	OMNR should proceed immediately to resolve the current administrative and managerial obstacles to the delivery of sound forest management by negotiating a Sustainable Forest Licence on the Unit. This new Licence should be effective by March 31 st , 2001.	A service agreement is in place; however, no SFL has been negotiated.	An SFL is not in place.
Rec #	1995-2000 IFA Recommendation Moose River MU	Status Report on Recommendation Action	Auditor Observation
1	The OMNR should see that the Planning Team for the 2003 FMP is convened by January/February 2001 to ensure adequate time for plan production.	On January 29 th , 2001 Tembec requested OMNR to initiate the planning process. The first planning team meeting was held April 4 th , 2001.	The first meeting was two months later than the recommended time.
2	The author of the next FMP should ensure that it contains a detailed access strategy describing long-term plans for access development in the Unit, and explicitly relating access development to wood supply implications.	A draft strategy was made available at the first information centre and was completed for draft plan submission.	The auditor observed the strategy and determined it met the requirements of the FMPM.

3	Corporate and District OMNR and the future licence holder should see that the socio-economic profile is developed with input from local and regional economic development officers and other knowledgeable people, and supplemented with more current data sources if required. The analysis of SE impacts for management alternatives should be based on both SEIM analysis and local knowledge.	Staff attended SEIM training in 2001. The socio-economic review and impact assessment was completed.	A socio-economic profile was produced and reviewed by the author. It met the requirements of the FMPM.
4	The OMNR should modify the forest management planning process to encourage evaluation of meaningful management alternatives.	MNR dealt with issue in the scheduled revision of the FMPM. There were six management alternatives considered for the 2003 – 2023 FMP. All were available for public review at information centres and are in the FMP supplementary documentation.	The auditor determined the process was complete and met all requirements.
5	The OMNR should focus fisheries survey activities on areas slated for forest management.	Values were collected and mapped for the 2003-2023 FMP.	The auditor reviewed maps and files (e.g. water crossing surveys) and determined values were collected.
6	The next FMP should contain SGR's that specify conditions necessary to minimize logging damage to sensitive forest/unit site type combinations (e.g. seasonal harvesting restrictions and the use of high flotation equipment in the frost-free season).	The SGR's in the approved FMP outline sensitive sites and seasonal harvesting restrictions.	The auditor observed files and completed field inspections and determined there was minimal site damage. High flotation equipment was observed in operation.

7	The author of the next FMP should ensure that a more comprehensive description of the silviculture assessment program is provided in the text of the plan.	A more comprehensive description was completed and is included in the FMP.	The auditor determined that Tembec had a silvicultural assessment program.
8	For the preparation of the 2003 FMP, the plan author should revise the estimates of fire return times and rates of road and landing rehabilitation used in the SFMM analysis for the 1998 FMP.	Completed as per direction provided by the OMNR. Revised fire estimates were used in the approved 2003-2023 FMP. Revised roads, landing rates and landings rehabilitation rates were used in the 2003-2023 FMP.	The auditor observed that OMNR provided direction and revised estimates were used in the SFMM analysis.
9	When an SFL is signed for the MRMU, the poplar commitment to Norbord should be reviewed and revised in such a way that it is feasible and there should be an accompanying requirement that the prime licence holder must consult with commitment holders regarding harvest allocations on a timely basis.	MNR direction set poplar commitments used for volume targets and SFMM modeling. Commitment holders were involved in AWS development.	The auditor determined that commitment holders were consulted.
10	Tembec should review incidents of rutting over past two years, precisely identify what safeguards failed or what actions were omitted, and develop appropriate corrective measures.	Tembec has developed a SOP that outlines steps to prevent site disturbance.	Tembec did develop SOPs for site disturbance. High floatation equipment was successfully used on most operations and operator training was completed.

11	Tembec and the OMNR should develop evaluation criteria and incorporate reportable measures of site disturbance into their compliance and monitoring plans. Tembec and the OMNR should also update their compliance and monitoring strategy for monitoring site disturbance on sensitive sites.	Completed. Covered under the company EMS. Site disturbance SOP is in place and implemented in the 2003-2004 AWS.	The auditor observed this had been completed.
12	Tembec and the OMNR should work towards a common understanding of key aspects of wasteful practices and set medium-term (i.e. 2-3 years in future) targets for improved utilization. If these are not met at that time, identify shortcomings and devise a remedial program.	Completed. Supervisors are conducting surveillance. Ground utilization checks are completed for each harvest block. Compliance flights were initiated in 2000.	Tolerance levels were developed by the OMNR. Field checks and compliance flights were done. OMNR did not conduct an adequate number of inspections.
13	The OMNR and Norbord should jointly examine the erosion problems on Norbord Road 47 and develop and implement corrective measures.	Completed.	The auditor determined this had been completed.
14	The companies should retrieve abandoned culverts left as litter in the forest, and develop a process to ensure the practice of abandoning culverts at roadsides stops.	Completed. Abandoned culverts were removed.	The auditor did not encounter any abandoned culverts or other debris.
15	Tembec and Norbord should implement a program directed at the management of roadside slash.	Completed. There is now an approved slash pile burn	Area adjustments for roadside slash and landings were included in SFMM.

	- an assessment of the amount of productive forest area lost to roadside slash. - incorporation of updated calculations of loss of productive forest area into SFMM modeling inputs for the next FMP. - Initiation of efforts to reduce productive forest area lost to roadside slash (e.g. pile and burn, delimb at the stump). - development of a mechanism for regular reporting of slash management activities.	plan. Assessment completed. Assessment results used in SFMM.	A slash pile and pile burning program has been implemented on the CMRMU. The program was concentrated on areas where artificial regeneration was planned, where access was present, and areas that were most visible to the public. Pile burning met with mixed results due to weather conditions and pile conditions (e.g. excessive soil in the piles, level of compaction). Other options for slash management were being considered (i.e. cut-to-length harvesters) and evaluated as part of Tembec's EMS. Slash management activities are included in the Annual Reports.
16	The next FMP should include a mixed wood management strategy to ensure the best utilization and effective regeneration of mixedwood crop species. This strategy should also be embodied in the silvicultural ground rules.	Completed.	There is a strategy to deal with mixed wood utilization and regeneration.
17	The OMNR should locate AR-tables for 1999-2000 and attach these to relevant annual report; if not available, it should be compiled. Once this has been done, the OMNR and Tembec should arrange a series of meetings and field visits to discuss issues related to compliance with	Completed. Tembec and MNR have annual meetings to discuss operational issues.	Annual meetings do take place and issues have been discussed and largely resolved. The auditor determined that the level of OMNR inspections is inadequate.

	the objective of developing a shared understanding of when non-compliance occurs, how its significance is assessed, and a protocol for resolving disputed incidents of non-compliance before they can become magnified in significance. Should meetings of staff involved be unable to resolve these issues, subsequent steps such as the following should be undertaken - initiate discussions among senior OMNR and company staff. - meet with the OMNR and company staff on nearby forest units where the compliance partnership is harmonious to learn from a more successful experience. - hire an independent third-party as a mediator.		
18	OMNR District staff should be made aware that the results of all inspections are to be included in the annual summary reports, including inspections conducted before operations are completed.	Completed.	The OMNR does include information in the annual report summaries. Reporting does not meet FMPM requirements.
19	The OMNR should develop a District Compliance Plan annually to ensure that it incorporates the most current compliance strategies and measures of delivery effectiveness. The OMNR should also set	Annual Compliance plan was completed for 2002/2003 and annually thereafter.	ACOPs were completed for all 5 years of the audit period.

	specific FOIR targets for renewal and maintenance in its Annual Forestry Compliance Audit Scheduler.		
20	Tembec must specify minimum inspection intensities for renewal and maintenance operations within its Annual Forest Compliance Plan and ensure that FOIR's are completed for each scheduled inspection.	Completed.	The auditor determined these were completed; however there were issues with the late submission.
21	The author of the next plan and the OMNR should ensure that documentation is archived at critical milestones of plan production to have a record that all requirements of the planning process were met at the required time intervals.	Completed.	Documentation was partially complete. There was variation from the schedule.
22	Tembec and the OMNR should jointly review the status of blocks that required 5 th year assessment and/or FTG survey during the period of transition of responsibility from the OMNR to Tembec (1995-1997). This would ensure that outstanding surveys are completed or scheduled for an appropriate time in the future.	Completed and ongoing.	Tembec undertook silvicultural surveys to establish the status of historic backlog. FTG is scheduled in the AR and is on-going. A backlog remains.
23	Tembec should review the status of blocks harvested from 1995-1997 to determine whether supplementary renewal or tending treatments are required to meet minimum stocking and free to grow standards.	Completed.	Tembec is completing surveys on the historic cut blocks.

24	The OMNR should review all the Annual Report tables for which it had production responsibility in the audit period and ensure they were thoroughly completed.	Completed.	Tables for 1995-2000 were completed. Tables for 2000-2005 were consistently late and incomplete.
25	The OMNR and Tembec should immediately develop a Memorandum of Understanding or a comparable legal agreement, which empowers the company to undertake interim management of the Unit.	Completed and ongoing.	A service agreement is place.
26	The OMNR should identify a contingency plan for development of the 2003 FMP in case the licence situation is not resolved by January 2001.	The 2003 plan was written by Tembec under a services agreement.	A contingency plan was not required as Tembec completed the 2003 FMP under a service agreement.

4.0. Summary of Conclusions and Recommendations

A total of 18 Recommendations, 3 Suggestions, and 1 Best Practice are identified in this audit. Recommendations are made to OMNR and to address problems identified during the audit (see Table 10). A summary of the audit findings are presented below by audit guiding principle.

Commitment

The CMRMU is a Crown Management Unit managed by the Cochrane District OMNR with the same responsibilities as a Sustainable Forest Licence (SFL). This Unit is characterized by extensive service agreements with industry, the amalgamation of two former crown management units and long-standing unsuccessful attempts to establish a SFL. Specific forest management responsibilities (e.g. forest management planning, silviculture) were contracted to Tembec Industries Inc. Tembec subsequently sub-contracted some responsibilities to Norbord. The Unit also has a large number of traditional Forest Resource License holders.

Previous independent forest audits (1995 - 2000) of the CMU and the MRMU provided recommendations related to the lack of adherence to deadlines, inadequate data, reporting, monitoring, and substandard record maintenance. The required Action Plans for both the CMU and MRMU were submitted approximately two years late. While progress had been made in responding to some of the audit recommendations on both sub-units, other important recommendations with respect to the reporting and compliance were not satisfactorily addressed.

In the absence of an SFL structure, the OMNR strategy to use service agreements with Tembec for the delivery of forest management functions resulted in a confusing management and record maintenance regime, and on-going non-compliance with FMPM requirements. The audit was characterized by a number of disputes between Tembec and the OMNR with respect to management responsibility on the Unit. The auditor is of the opinion that OMNR was responsible and accountable for the actions of its contractor. This responsibility included the responsibility to monitor contracted functions and take action on problems. OMNR did not meet those responsibilities. The implementation of these service agreements was characterized by confusion between the parties with respect to reporting requirements, and in some instances disputes with regard to work responsibilities.

OMNR had difficulty maintaining an effective field presence due to staff shortages and staff turnovers. OMNR's continuing failure to deal with its staffing issues over the past decade has contributed to its failure to meet some of its mandated responsibilities.

Public Participation

The Cochrane District LCC had responsibility for four forest management plans. The LCC had recruitment and retention problems that affected its ability to carry out its responsibilities. Due to these problems the LCC did not function for an eight month period, and did not effectively participate in the 2003 forest management planning process.

During development of the FMPs all FMPM public notification requirements were met. First Nation communities received required FMPM notifications. For the 2003 FMP, Taykwa Tagamou and Wagoshig First Nation participated in the Forest Management Native Consultation Program. The Moose Cree First Nation elected not to participate in the formal process but individual band members utilized the public consultation process. OMNR substantially met its obligations with respect to EA Condition 77.

Forest Management Planning

The 1998 CMU FMP was written by the OMNR. The 1998 MRMU FMP was prepared by Tembec. Tembec also prepared the 2003 FMP for the CMRMU. The

forest management plan was prepared in accordance with the requirements of the FMPM.

The 2003 CMRMU FMP contained detailed monitoring and assessment strategies that fulfilled the FMPM requirements. A Five-Year Compliance Strategy was written for the CMRMU and met the requirements outlined in the "Guideline for Forest Industry Compliance Planning".

Plan Implementation

The OMNR has been attempting to establish an SFL on the CMRMU for over a decade. The auditor is of the opinion that this preoccupation with shifting management responsibilities to forest industry contributed to neglect of its primary responsibility to ensure the delivery of forest management activities on the Unit. For example, between 1998-2003, there was limited silvicultural work conducted on the CMU, as OMNR was involved in negotiating a service agreement with Tembec. During the audit each party assigned blame to the other for the lack of silvicultural activity.

FMPM requirements for the documentation of Areas of Concern (AOCs) were complete and in place for the development of the plan. Silvicultural Ground Rules (SGR) were drafted in accordance with guides developed by OMNR. Field operations inspected during the audit conformed to the SGRs.

Audit field site inspections determined that harvest and renewal operations were conducted in accordance with approved silvicultural ground rules and demonstrated, with few exceptions, good protection of soils and waterways. The slash management program on the Unit had mixed results. Most areas of natural regeneration met or exceeded stocking standards. The artificial renewal program was generally effective, although delays in implementing silviculture and the use of poor quality planting stock, on the CMU resulted in low stocking levels.

CLAAG and HARP harvest strategies were effectively implemented and retained stand vertical structure and more in-stand characteristics (i.e. ground cover) than traditional clearcutting systems. Operators on the Unit had made effective use of high floatation equipment that minimized damage to sensitive sites.

Several instances of poor wood utilization and wasteful practices were observed on the CMU, primarily due to issues associated with suspended blocks. The auditor was concerned with the area of land classified as depleted on the Unit. Tembec is actively surveying the areas to determine regeneration status, but a backlog remains.

System Support

The CMRMU had a complement of OMNR forestry staff associated with a SFL. However, efforts to negotiate an SFL have been on-going for a decade and the CMRMU remains a Crown Management Unit. It is the auditor's assessment that there is a larger OMNR field workload associated with managing a Crown Unit than where OMNR is in a partnership role with an established SFL.

OMNR had difficulty maintaining an effective field presence due to staff shortages and turnovers, particularly on the Cochrane sub-unit where it had direct responsibilities for compliance inspections. These problems have been on-going for a number of years. Staff training was completed as required.

In general, document control and quality was substandard. The auditor encountered numerous problems with missing and/or inconsistent data. Tables within the ARs were incomplete, and explanatory text was often limited or missing.

During the audit, there were a number of instances where information in documents prepared by the service provider, was disputed by OMNR. This circumstance leads the auditor to conclude that the OMNR had failed to fully monitor and verify the work of its service provider.

Monitoring

The 2003 CMRMU FMP contained detailed monitoring and assessment strategies that fulfilled FMPM requirements. A Five-Year Compliance Strategy was written for the CMRMU and met the requirements outlined in the "Guideline for Forest Industry Compliance Planning".

OMNR wrote District Annual Compliance Operations Plans (ACOPS) for each year of the audit period. Those plans were complete and reflected the priorities for all compliance activities in the District. Although the planned forest compliance activity was appropriate to the level of forest management activity on the unit, OMNR did not meet their commitments for inspections, primarily due to staff shortages and/or lack of trained staff.

The auditor concludes that the level of monitoring on the CMU was inadequate.

Text in the Annual Reports did not provide sufficient explanations of differences between the level of activity scheduled in the AWS and the level of activity that actually occurred. AR text also lacked discussion on emerging trends and issues. The required tables were often incomplete or inaccurate.

RPFOs were not available for either the MRMU or the CMU. Local OMNR staff was of the opinion that the 2004 FMPM altered RPFO reporting requirements. The auditor determined that RPFOs were required.

Achievement of the Management Objectives and Forest Sustainability

Shortcomings were identified in the audit, some which have persisted for a decade. These shortcomings included the lack of silvicultural activity on the CMU early in the audit period, the large area classified as depleted, issues related to wood utilization on the Cochrane sub-unit, inadequate reporting, and inadequate compliance monitoring by OMNR.

The auditor concludes that the five indicators of forest sustainability listed in the FMPM have been substantially met.

- The SMA is consistent with forest sustainability.
- Soil and water values are being maintained.
- The area of productive Crown forest land has been maintained.
- The forest is being renewed.
- Benefits to society are being derived from the CMRMU.

The auditor has a concern however, that inadequate administration of the CMRMU, combined with poor reporting, and record maintenance, if allowed to persist, poses a longer term threat to forest sustainability. Without proper records, the forest manager cannot track and assess the effectiveness of forest management activities.

Contractual Obligations

The SPA account balance significantly exceeded the required minimum balance. The Cochrane OMNR indicated that the reason for the large balance was their concern with respect to large areas with uncertain renewal status (NSR/B&S/Depleted).

The previous IFAs of the CMU and MRMU resulted in 16 recommendations for the CMU and 26 recommendations for the MRMU. The required Audit Action Plans were submitted 2 years late. While significant progress had been made in responding to some of the recommendations, others relative to reporting and compliance were not satisfactorily addressed.

Conclusion

The auditor concludes that the management performance of the OMNR on the CMRMU only partially met the requirements of the 1996 Forest Management Planning Manual.

This finding is based on the following major shortcomings:

- The OMNR strategy to deliver forest management through service agreements resulted in a confusing management and record maintenance regime.
- OMNR has not adequately monitored the delivery of forest management activities or reports by its service provider.
- Response to the 1995 - 2000 IFA audit recommendations was two years late.
- Contrary to reported information in the 2000 IFA Audit Action Plans and Status Reports some remedial actions have not been fully implemented.
- OMNR compliance monitoring was inadequate.
- OMNR did not have sufficient forestry staff to meet its administrative obligations on the CMRMU.
- Information in Annual Reports during the 2000 - 2005 audit period did not meet FMPM requirements.
- RPFOs for the 1998 - 2003 plan term were not prepared.
- The Cochrane LCC was not active for 8 months and a LCC representative did not fully participate on the forest management planning team.

The relatively low level of harvest activity, the general adherence of field operations to SGRs and guidelines, and the abundance of natural regeneration following harvesting observed during the audit period lead the auditor to conclude that forest sustainability is not jeopardized in the short term. However, serious issues related to the delivery and administration of forest management on the CMRMU could have implications for long term forest sustainability. Timely and accurate data is essential to properly assess the effectiveness of forest management activities and develop sustainable plans.

The auditor concluded that the OMNR did not fully meet its legal obligations and did not fully conform to the legislation, regulations, and policies in effect during the audit period and therefore recommends:

Recommendation # 17:

Corporate OMNR must direct the Cochrane OMNR District Manager to fully address all recommendations in this report within 24 months. At that time, an internal OMNR review should be conducted to determine if all past and present IFA recommendations have been addressed. The findings of the internal review should be provided to the Forestry Futures Committee and the OMNR Deputy Minister.

The Cochrane OMNR has responsibility for the CMRMU (a Crown Unit) and the Iroquois Falls Forest (an SFL). The forestry staffing levels are similar for both units. It is the auditor's view that a Crown Unit requires more OMNR forestry staff to effectively meet its obligations than that required for an SFL. The auditor believes that this shortage of OMNR staff was a principal reason for OMNR using service agreements for the delivery of forest management functions on the Unit. However, the audit finds that the OMNR does not have the capacity to monitor and administer these service agreements. As a result, a number of FMPM requirements for reporting and compliance monitoring were not fully met. The auditor recommends that the OMNR negotiate a SFL or accept its full management responsibility for the Unit, supported with adequate staff and resources, to effectively manage and meet all its legal obligations.

Recommendation # 18:

The Minister of Natural Resources should establish a 24-month deadline for the negotiation of an SFL on the Cochrane Moose River Management Unit. At that time, if an SFL has not been negotiated, the Minister should;

1. Amalgamate the CMRMU with an adjacent SFL or SFLs,
- or
2. Provide sufficient staff and resources to enable the Cochrane District to effectively meet all forest manager obligations on the CMRMU.

TABLE 10. SUMMARY OF RECOMMENDATIONS AND SUGGESTIONS

Principle 1: Commitment
Recommendation # 1: The OMNR District Manager should develop a procedure that ensures services and products produced by its contractors are supplied, reviewed and approved in a timely manner.
Principle 2: Public Participation
Recommendation # 2: The OMNR District Manager should conduct a workshop with past and present LCC members to discuss problems and develop strategies to enable the successful functioning of the Cochrane LCC.
Principle 3: Forest Management Planning
Recommendation # 3: The Cochrane District Manager must ensure that the LCC has representation on the CRMU forest management planning team. Suggestion # 1: Corporate OMNR guideline training should reconfirm the degree of flexibility that planning teams have in implementing guidelines. Suggestion # 2: Corporate OMNR needs to increase understanding (e.g. training of LCCs, OMNR and industry) of the rationale and process for developing and implementing forest management guidelines. Recommendation # 4: The OMNR and Tembec should engage in increased dialogue during AWS development to reduce the number of required alternations.

Principle 4: Plan Implementation

Recommendation # 5:

The OMNR Cochrane District Manager should develop a protocol with respect to "suspended blocks" to ensure that harvested wood is hauled in a timely manner and that routine silvicultural operations are not adversely affected.

Recommendation # 6:

The Cochrane District Manager should review the wood allocation process on the Cochrane sub-unit to improve the viability of harvesting operations and the delivery of harvested wood to markets.

Suggestion # 3:

The OMNR Cochrane District Manager should ensure that Tembec uses planting stock of sufficient size and quality in artificial renewal treatments.

Recommendation # 7:

The OMNR Cochrane District Manager must ensure that artificial renewal and tending treatments occur within an appropriate time frame on the Cochrane sub-unit.

Recommendation # 8:

The OMNR Cochrane District Manager should ensure that efforts are continued to determine the regeneration status of lands classified as depleted.

Best Practice:

Tembec's use of moss to stabilize ditches and cutaways and re-habilitate abandoned roads to a more natural condition while reducing the erosion potential of the site.

Principle 5: Systems Support

Recommendation # 9:

Corporate OMNR, with Cochrane District support, should develop and implement human resource management strategies specifically for the recruitment and retention of professional forest management staff in the Cochrane District.

Recommendation # 10:

The Cochrane District Manager must ensure that the service provider is meeting its contracted obligations and that OMNR retains access to, and ownership of, all records, data and correspondence.

Principle 6: Monitoring**Recommendation # 11:**

The OMNR Cochrane District should significantly increase the number of compliance inspections that it carries out on the Cochrane Moose River Management Unit.

Recommendation # 12:

The Forest Industry and OMNR must meet compliance reporting requirements as stipulated in the Forest Information Manual.

Recommendation # 13:

The OMNR Cochrane District Manager must ensure:

- 1) that Annual Reports contain sufficient text to explain any differences between scheduled and actual activities and include a discussion of any emerging trends and issues.
- 2) That AR Table 12 requirements are completed as per FMPM requirements.

Recommendation # 14:

The OMNR Cochrane District Manager should ensure that a Report of Past Forest Operations is prepared immediately and submitted in compliance with 1996 Forest Management Planning Manual.

Principle 7: Achievement of Management Objectives and Forest Sustainability

No recommendations provided.

Principle 8: Contractual Obligations

Recommendation # 15:

The District Manager needs to ensure that staff adheres to information requirements and timelines for the Independent Forest Audit.

Recommendation # 16:

The Cochrane District Manager must action the outstanding recommendations from the previous IFA for completion within 6 months of the date of the submission of the 2005 IFA Report.

Summary of Conclusions and Recommendations

Recommendation # 17:

Corporate OMNR must direct the Cochrane OMNR District Manager to fully address all recommendations in this report within 24 months. At that time, an internal OMNR review should be conducted to determine if all past and present IFA recommendations have been addressed. The findings of the internal review should be provided to the Forestry Futures Committee and the OMNR Deputy Minister.

Recommendation # 18:

The Minister of Natural Resources should establish a 24 month deadline for the negotiation of an SFL on the Cochrane Moose River Management Unit. At that time, if an SFL has not been negotiated, the Minister should;

1. Amalgamate the CMRMU with an adjacent SFL or SFLs,

or

2. Provide sufficient staff and resources to enable the Cochrane District to effectively meet all forest manager obligations on the CMRMU.

Appendix A

Comparison & Trend Analysis of Planned vs. Actual Forest Operations

Independent Forest Audit - Comparison and Trend Analysis
of Planned vs. Actual Forest Operations Report
For the
Cochrane-Moose River Management Unit

Prepared by Tembec Industries Inc for the Ministry of Natural Resources:

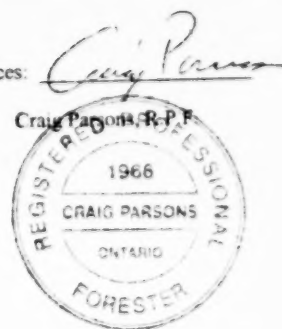




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1.0 INTRODUCTION

This Trend Analysis Report (TAR) is one component of the 2005 independent forest audit performed on the Cochrane-Moose River Management Unit. The purpose of the independent forest audit is to assess the compliance of forest management with the Crown Sustainability Act, the Forest Management Planning Process, and to evaluate planned versus actual forest management activities.

The purpose of this TAR is to provide a comparison and trend analysis of planned versus actual forest operations over time. The term of the audit is from 2000 to 2005 and encompasses Report of Past Forest Operations from the 1993 and 1998 Forest Management Plans. During the audit period the management of the unit transferred from the Ministry of Natural Resources Cochrane District to Tembec Industries Inc through management planning and renewal service agreements. An SFL for the unit has yet to be signed.

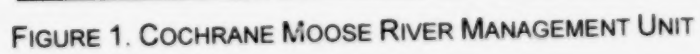
1.1 Cochrane - Moose River Management Unit

The Cochrane-Moose River Management Unit (the Unit) lies within the Ministry of Natural Resources Northeast Region, all in the Cochrane District (Figure 1). The Cochrane-Moose River Management Unit is an amalgamation of the former Cochrane Management Unit and the Moose River Management Units (Figure 2). Both units are found in the Ministry of Natural Resources Cochrane District, northeast region.

The northern portion of the Unit is made up by the former Moose River Management Unit and will be referred to as the Moose River sub-unit. This portion of the Unit borders the Quebec border to the east, the boundary of the area of the undertaking to the north, the Gordon Cosens Forest to the west, and the Smooth Rock Falls and Iroquois Falls Forests to the south. Forest harvesting operations commenced on the Moose River Management Unit in 1975. Harvesting during the 1975-85 period was permitted under a Volume Agreement with Normick Perron Inc., the original owner of the Cochrane sawmill.

Until 1984 the Moose River Management Unit included area from what is now known as the Moosonee Management Unit. Soon after the completion of a 1982 Forest Resource Inventory the current Moose River Management Unit boundary was developed. The boundary changed by adding portions of the old Kesagami and Smooth Rock Management Units and excluding area from the Moosonee Management Unit. During this planning process the portion of the Unit referred to as the "tail" along the Abitibi River extending south into the Smooth Rock Falls Forest has been removed and will be absorbed into the Smooth Rock Falls Forest.

The southern portion of the Unit includes the former Cochrane Management Unit and will be referred to as the Cochrane sub-unit. The boundaries of the Cochrane Management Unit were originally established in 1969. A realignment of boundaries occurred in 1987, with another realignment during this planning process. The OBM's surrounding the Town of



Smooth Rock Falls and the OBM in the Inglis Township have been removed from the Unit and will be amalgamated with the Smooth Rock Falls Forest during FMP development for the 2005 Smooth Rock Falls Forest FMP. The Cochrane sub-unit is bordered to the north and south by the Nighthawk Forest (Abitibi-Consolidated Inc.), to the west by the Smooth Rock Falls Forest (Tembec Industries Inc.), and to the east by the Iroquois Falls Forest (Abitibi-Consolidated Inc.)

The 1993 Cochrane and Moose River Plans were written by the Ministry of Natural Resources Cochrane District. The 1998 Cochrane Management Unit Plan was also written by the MNR with Tembec Industries Inc writing the 1998 Moose River FMP. Tembec Industries Inc wrote the 2003-2008 FMP for both units amalgamated under one FMP. In this report trends will be analyzed for each of the former management units with the 2003 – 2008 values reported by sub-unit (the former Cochrane Management Unit is now the Cochrane sub-unit and the Moose River Management unit is now the Moose River sub-unit). For the audit period the Ministry of Natural Resources was responsible for the management with Tembec Industries Inc providing management planning and renewal services through the renewal and maintenance and planning services agreements.

The scope of the comparison and trend analysis of planned versus actual forest operations includes reports of past forest operations from 1993 and annual reports from 1998 to the 2004. Tembec Industries Inc. has taken the lead role in the development of this report with the support of the Ministry of Natural Resources.

The Cochrane - Moose River Management unit is part of the Ministry of Natural Resources Cochrane District and Northeast Region (Figure 1). It provides the local forest industry with much of its fibre resources, in particular for the Tembec Industries Inc. sawmill in Cochrane and to a lesser degree Norbord Industries Inc.'s poplar veneer mill in Cochrane, and Grant Forest Products poplar OSB mills in Timmins and Englehart. The unit covers over 1.3 million hectares.

The unit boundary as it stands was established in 2003.

2.0 COMPARISON AND TREND ANALYSIS

The Report of Past Forest Operations (RPFO) in the 2003 Forest Management Plan covers the 1993 to 1998 planning period along with the first two years of operations from the 1998-2003 FMP's. Much of the information presented in this comparison and trend analysis will be drawn from the 1993 RPFO and the 1998- 2004 annual reports.

2.1 Summary of Total Area Under Management

Table 1A and 1B provide a summaries of the Crown managed landbase by non-forested, forested and production forest for both the Cochrane Management Unit and the Moose River Management Unit. The landbase summary for the 1993 and 1998 plan terms applies to the same boundaries, but the 2003 plan term is based on the sub-unit boundaries as they appear in the 2003 FMP. For the Moose River sub-unit the portion of the unit known as the "tail"

south of Fraserdale now forms part of the Smooth rock falls Forest.

In the 1993 Moose River Plan the unit was separated into two working circles, one working circle was defined as accessible and the other inaccessible in the long term. The managed landbase reported for the 1993-1998 term represents working circle 1. The increase in the total production forest in the 1998 plan is a result of the elimination of the working circles and the inclusion of all production forest on the unit. The Cochrane District Remote Wilderness (Tourism) Strategy removed a 67,920 ha section of land in the middle of the unit. This land withdrawal resulted in a decrease of 28,723 ha of managed productive forest in the 1998 Plan. In the 2003 FMP the total productive landbase for the

Moose River sub-unit decreased by over 54,000 ha, primarily due to the formation of protected spaces through the OLL process, and to a lesser extent the removal of the "tail" from the unit landbase.

Further significant events that occurred on the unit in 1995 were three major wildfires. These wildfires covered 23,755 ha and resulted in 15,000 ha of free-growing forest shifting into the not-satisfactorily-regenerated (NSR) land classification. The area burned by the largest of the three wildfires has since been included in part of the Ontario Living Legacy (MNR, 1999) land withdrawals. There have been no significant natural disturbances since the fires in 1995.

On the Cochrane sub-unit the 1993 and 1998 plan periods reflect the same landbase. For the 2003 FMP portions of the unit around the Town of Smooth Rock Falls and the Township of Inglis were removed from the landbase and included in the Smooth Rock Falls Forest. This has resulted in the decrease of the production forest. There was a significant decrease in the amount of barren and scattered and not sufficiently regenerated between the three plan terms due to re-classification of lands due the FRI updating processes during the production of the 1998 and 2003 FMP's. There were no significant natural disturbance events during this period.

Significant changes to the managed landbase on the unit in recent history make it difficult to accurately track any landbase changes over the three plan periods.

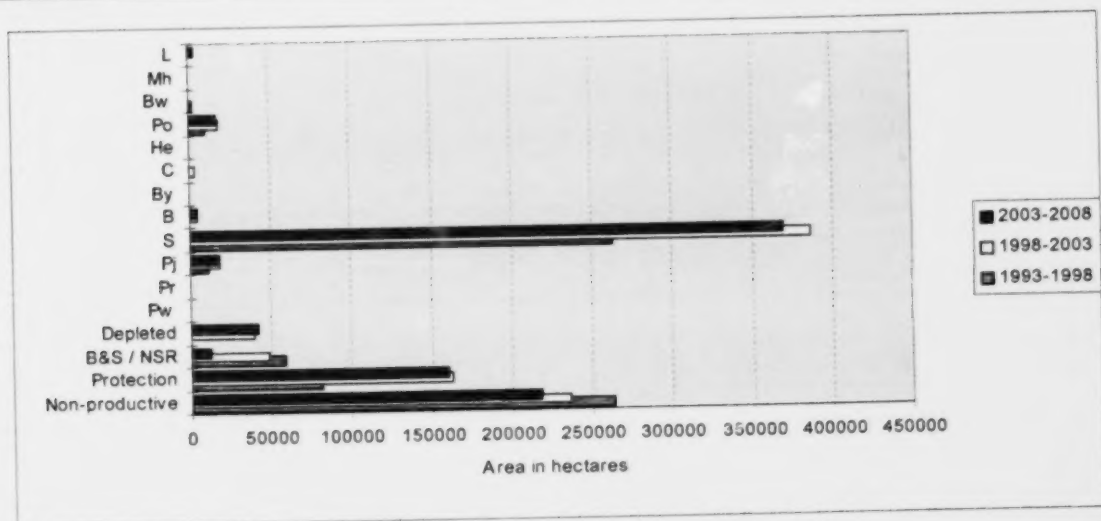
2005 Independent Forest Audit

Table 1A - Summary of Total Area Under Management

Past and Current Plans - Crown Managed

MU: Moose River Management Unit

Land Type	Plan Term	Area in hectares		
		Past Plans		Current
		1993-1998	1998-2003	2003-2008
Non-Forested				
Other Land		1,243	3,013	3,180
Forested				
Non-productive		263,296	236,624	218,018
Productive				
Protection		81,389	162,934	160,810
Production Forest				
B&S / NSR		59,346	49,051	12,818
Depleted		-	39,764	42,068
Forest Stands by Working Group				
Pw		-	-	-
Pr		-	-	-
Pj		11,772	18,409	17,651
S		263,791	386,695	369,631
B		1,180	4,184	3,961
By		-	-	-
C		431	3,066	153
He		-	-	-
Po		9,901	18,482	16,634
Bw		2,463	1,597	520
Mh		-	-	-
L		-	-	3,088
Total Production Forest		348,884	521,248	466,524
Total Forested Land		693,569	920,806	845,352



Source: FMP tables 1&2, TMP table 4.8.2

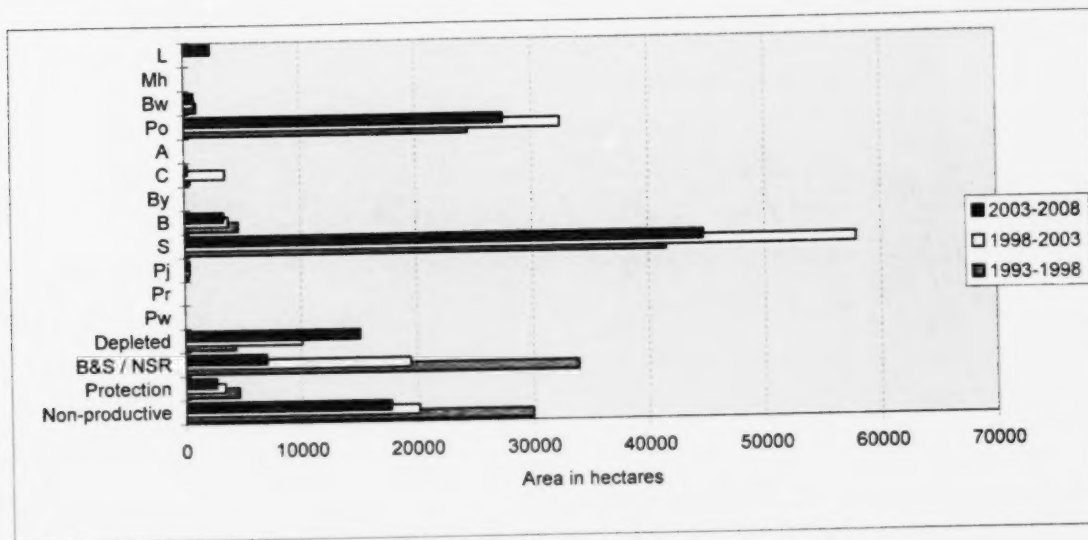
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Table 1B - Summary of Total Area Under Management

Past and Current Plans - Crown Managed

MU: Cochrane Management Unit

Land Type	Plan Term	Area in hectares		
		Past Plans		Current
		1993-1998	1998-2003	2003-2008
Non-Forested				
Other Land		4,306	6,624	1,821
Forested				
Non-productive		29,975	20,166	17,753
Productive				
Protection		4,649	3,416	2,663
Production Forest				
B&S / NSR		33,934	19,423	7,003
Depleted		4,367	10,102	15,098
Forest Stands by Working Group				
Pw		-	-	
Pr		-	-	
Pj		314	402	388
S		41,541	57,855	44,732
B		4,653	3,782	3,384
By		-	-	
C		498	3,521	306
A		-	-	9
Po		24,546	32,476	27,590
Bw		1,106	894	842
Mh		-	-	
L		-	-	2,318
Total Production Forest		110,959	128,455	101,670
Total Forested Land		145,583	152,037	122,086



Source: FMP tables 1&2, TMP table 4.8.2

2.2 Description of Forest Units

Table 2 A through 2E summarizes forest units for 3 plan terms separated by management unit (i.e. Cochrane and Moose River Management Units for the 1993-1998 1998-2003 FMP's) up until the development of the current plan (2003-2008) in which the units were amalgamated. Forest units remained relatively constant for both the CMU and the MRMU during the 1993 and 1998 plan periods, and were based on mainly working group and site class. There were considerable changes in the 2003 FMP when the standard units were adopted.

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Table 2A - DESCRIPTION OF FOREST UNITS (FMP-8)

Moose River Management Unit

Plan Term 1993-1998

Forest Unit		Forest Type	Main Working Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information
Code	Name						
Pj	Jack pine	Conifer	Pj		clearcut/careful logging	Working group jack pine site classes-all	
Sp1	Spruce 1	Conifer	Sb&Sw		clearcut/careful logging	Working group jack pine site classes X and 1	
Sp2	Spruce 2	Conifer	Sb&Sw		clearcut/careful logging	Working group jack pine site classes 2	
Sp3	Spruce 3	Conifer	Sb&Ce&La		clearcut/careful logging	Working group jack pine site classes 2	
Bf	Balsam	Conifer	Bf		clearcut/careful logging	Working group jack pine site classes-all	
Po	Poplar	Hardwood	Po		clearcut	Working group jack pine site classes-all	
Bw	Birch	Hardwood	Bw		clearcut	Working group jack pine site classes-all	

Source 1993-1998 TMP 4 13

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Table 2 B - DESCRIPTION OF FOREST UNITS (FMP-8)

Cochrane Management Unit

Plan Term 1993-1998

Forest Unit		Forest Type	Main Working Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria
Code	Name					
Spr1	Spruce	CONIFER	Sp	na	clearcut	1) Working Group = Sb or Sw. 2) Site Class = X, 1 or 2
Spr3	Spruce	CONIFER	Sp	na	clearcut	1) Working Group = Sb or Sw. 2) Site Class = 3
Sp4	Spruce	CONIFER	Sp	na	clearcut	1) Working Group = Sb or Sw. 2) Site Class = 4
BF	Balsam	CONIFER	Bf	na	clearcut	1) Working Group = Bf, 2) Site Class = X, 1, 2, 3 or 4
PJ	Jack Pine	CONIFER	Pj	na	clearcut	1) Working Group = Pj, 2) Site Class = X, 1, 2, 3 or 4
OC	Other Conifer	CONIFER	Oc	na	clearcut	1) Working Group = Ce, La or Oc, 2) Site Class = X, 1, 2, 3 or 4
PO	Poplar	INTHWD	Po	na	clearcut	1) Working Group = Po, 2) Site Class = X, 1, 2, 3 or 4
PO4	Poplar	INTHWD	Po	na	clearcut	1) Working Group = Po, 2) Site Class = 4
BW	White Birch	INTHWD	Bw	na	clearcut	1) Working Group = Bw 2) Site Class = X, 1, 2, 3 or 4

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Table 2C - DESCRIPTION OF FOREST UNITS (FMP-8)

Moose River Management Unit

Plan Term 1998-2003

Forest Unit Code	Name	Forest Type	Main Working Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information
Pine	Pine	conifer	Pj	FEC - ST 2, 3, 4 thin organic layer over dry to fresh, fine to coarse sandy soils	clearcut / careful log	Working group jack pine for all site classes, i.e. X, 1, 2, 3 and 4	Weighted Ave. of species comp. Pj6 7Sb2 4Po0 7Bf0 1 Stocking: 0.91 Site Class: 2 Age: 21-80=59.8 yrs. >80=93.1 yrs.
Sp1	Sp1	conifer	Sb&Sw	FEC - ST 6, 8, 9, 11 organic material over coarse sandy, clayey, silty or loamy soils	clearcut / careful log	Working group black spruce for site classes, X, 1	Weighted Ave. of species comp. Sb7 3Po1Bf0 7Pj0 5S W0 3Bw0 1 Stocking: 0.81 Site Class: 1 Age: 21-90=62.4 yrs. >90=123 yrs.
Sp2	Sp 2	conifer	Sb&Sw	FEC - ST 1, 5, 6, 9, 11, 14 organic material over coarse sandy, silty, clayey or loamy soils including shallow soils over bedrock	clearcut / careful log	Working group black spruce for site class 2	Weighted Ave. of species comp. Sb8 6Po0 5Pj0 4Bf0 3 La0 2Sw0 1 Stocking: 0.77 Site Class: 2 Age: 21-110=76.5 yrs. >110=130 yrs.
Sp3	Sp 3	conifer	Sb	FEC - ST 11, 12 Moderate to deep organic soils. Little or no competition for crop trees	clearcut / careful logging	Working group black spruce for site classes 3, 4	Weighted Ave. of species comp. Sb9 2La0 3Pj0 2Po0 1Bf0 1 Stocking: 0.69 Site Class: 3 Age: 21-120=92.5 yrs. >120=134 yrs.
Bf	Fir	conifer	Bf	FEC - ST 9	clearcut / careful logging	Working group balsam fir for all site classes, i.e. X, 1, 2, 3 and 4	Weighted Ave. of Spp comp. Bf4 7Po1 5Sb1 5Sw1 2Bw0 8Pj0 1 Stocking: 0.73 Site Class: 1
Po	Poplr	hardwood	Po	FEC - ST 3, 6	clearcut	Working group poplar for all site class, i.e. X, 1, 2, 3 and 4	Weighted Ave. of species comp. Po5 7Sb1 7Bf0 9Sw0 5Bw0 5 Stocking: 0.84 Site Class: 2 Age: 21-70=50.6 yrs. >70=85.8 yrs.
Bw	Birch	hardwood	Bw	FEC - ST 6	clearcut	Working group white birch for all site classes, i.e. X, 1, 2, 3 and 4	Weighted Ave. of Spp comp. Bw4 5Po1 1Sw1 1Sb 1 1Pw0 6 Stocking: 0.75 Site Class: 2, 3
OC	Ocon	conifer	La, Ce	FEC - ST 12, 13	clearcut / careful logging	Working group other conifer for all site class, i.e. X, 1, 2, 3 and 4	Weighted Ave. of Spp comp. La6 4Sb3 1Cc0 4 Stocking: 0.71 Site Class: 2

Source: 1998-2003 FMP-8

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Table 2 D - DESCRIPTION OF FOREST UNITS (FMP-8)

Cochrane Management Unit

Plan Term 1998-2003

Forest Unit		Forest Type	Site Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria
Code	Name					
SP1	Spruce X1 pure	CONIFER	Sb	8 Sb_Sm (52.3%), 9 Sb_Bf (22.8%), 11 Sb_Lt (16.4%), 12 Sb_La (5.6%), 13 Sb_Ce (0.9%), 6 Hw_Mx (1.9%), 1 SS_BS (0.1%)	CLEARCUT	1) Working Group(s) = Black Spruce(11), White Spruce(12) and Spruce(11) 2) Species Comp. = SB + Sw >= 0.7 3) Site Class = X or 1
SP2	Spruce 2 pure	CONIFER	Sb	11 Sb_Lt (76.3%), 9 Sb_Bf (10.8%), 12 Sb_La (11.3%), 6 Hw_Mx (0.5%), 13 Sb_Ce (1.0%)	CLEARCUT	1) Working Groups: black spruce (1) white spruce (12) spruce all (10) 2) Species Composition: Sb + Sw >= 0.07 3) Site Class = 2
SP3	Spruce 3 Pure	CONIFER	Sb	11 Sb_Lt (80.3%), 12 Sb_La (14.8%), 13 Sb_Ce (2.9%), 9 Sb_Bf (2%)	CLEARCUT	1) Working Groups: black spruce (11) white spruce (12) spruce all (10) 2) Species Composition: Sb + Sw >= 0.7 3) Site Class = 3
PO1	PO X 1 2 pure	INTOLERANT HARDWOOD	Po	10 Hw_Sb (60.3%), 6 Hw_Mx (39.7%)	CLEARCUT	1) Working Groups: poplar (33) trembling aspen and balsam poplar 2) Species Composition: poplar >= 0.7 3) Site Class = X, 1 or 2
PO3	PO 3 pure	INTOLERANT HARDWOOD	Po	10 Hw_Sb (60.3%), 6 Hw_Mx (39.7%)	CLEARCUT	1) Working Groups: poplar (33) trembling aspen and balsam poplar 2) Species Composition: poplar >= 0.7 3) Site Class = 3 or 4
MxCOR	Mixed Conifer	CONIFER	Sb	9 Sb_Bf (35.4%), 12 Sb_La (32.2%), 6 Hw_Mx (25.9%), 13 Sb_Ce (5.6%), 3 Pj_PO (0.4%), 4 Pj_Sb (0.4%), 14 SbPFR (0.1%)	CLEARCUT	1) Working Groups: black spruce (11) white spruce (12) spruce all (10) balsam fir (13) jack pine (07) 2) Species Composition: Sb+Sw+Bf+Pj+La+Ce >= 0.7 3) Site Class = X, 1, 2, 3 or 4
MxHwd	Mixed hwd	INTOLERANT HARDWOOD	Po	6 Hw_Mx (97.2%), 7 Hw_Po (1.8%), 1 SS_BS (0.4%), 15 Hw_Ms (0.2%), 3 Pj_Po (0.5%)	CLEARCUT	1) Working Groups = poplar (33) White birch (36) 2) Species Composition: hardwood >= 0.7 3) Site Class = X, 1, 2, 3 or 4
MxWd	Mixed wood	MIXWD	Sb	6 Hw_Mx (98.6%), 3 Pj_Po (1.3%), SS_BS (0.1%)	CLEARCUT	1) Working Groups = black spruce (11), white spruce (12), spruce all (10), balsam fir (13), jack pine (07), poplar (33), and white birch (36) 2) Species Composition: Conifer (Sb+Sw+Bf+Pj+Ce+La) >= 0.4 and <= 0.6 and Hardwood (Po+Bw) >= 0.4 and <= 0.6 3) Site Class = X, 1, 2, 3 or 4
OCON	Other conifer	CONIFER	Larch	12 Sb_La (78.7%), 13 Sb_Ce (14.1%), 9 Sb_Bf (4.1%), 6 Hw_Mx (3.1%)	CLEARCUT	1) Working Group(s) = Larch (18), Cedar (17) and Other Conifer (19) 2) Species Comp. = Oc >= 0.7 or wg = 17, 18 or 19 3) Site Class = X, 1, 2, 3 or 4
BF1	Fir pure	CONIFER	Bf	9 Sb_Bf (97.2%), 6 Hw_Mx (2.8%)	CLEARCUT	1) Working Group(s) = Balsam Fir (13) 2) Species Comp. = BF >= 0.7 3) Site Class = X, 1, 2, 3 or 4
JPI	Jack pine pure	CONIFER	Pj	2 Pj_Pr (71.8%), 3 Pj_Po (8.6%), 4 Pj_Sb (19.6%)	CLEARCUT	1) Working Group(s) = jack pine (07) 2) Species Comp. = PJ >= 0.7 3) Site Class = X, 1, 2, 3 or 4

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Table 2 E - DESCRIPTION OF FOREST UNITS (FMP-8)

FMP-8 DESCRIPTION OF FOREST UNITS

Forest Unit		Forest Type	Main Working Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information		
Code	Name						SPC	STKG	SC
LH1	Lowland Hardwood	Hardwood	Lowland Hardwood	15	na	lh > 0.3	LH4Bf4Po1Sb1	0.79	1.0
BOG	Spruce Bog	Conifer	Black Spruce	14	na	sb+la > 0.7 and pw = 0 and sc = "4"			
						Sb > 0.8 and Mh + Uh + Pr = 0 and Pw + Pj > 0.1 and vSTK > 0.6 or vSTK = 0) Sb > 0.8 and Mh + Uh + Pr = 0 and Pw + Pj > 0.1 and vSTK < 0.6 and vAGE < 118)			
SBC	Black Spruce CLAAG	Conifer	Black Spruce	11, 8	clearcut	Sb > 0.8 and Mh + Uh + Pr = 0 and Pw + Pj > 0.1 and vSTK < 0.6 and vSTK > 0	Sb0	0.72	2.4
SBH	Black Spruce HARP	Conifer	Black Spruce	11	clearcut	pj > 0.7 and po + bw + mh + lh > 0.2	Sb0	0.46	2.5
PJ1	Jack Pine	Conifer	Jack Pine	1, 2a, b, 4, 5	clearcut	sb+ce+la > 0.8 and mh+uh+pr=0 and pw+pj > 0.1	Pj8Sb2	0.93	2.2
LC1	Lowland Conifer	Conifer	Black Spruce	13, 12, 1	clearcut	pj+sb+pr > 0.7 or pj > 0.5 and pj+sb+bf+sw+he+pw+pr+ce+la > 0.7 and bf+sw+he+pw+ce+la > 0.2 and pj > 0.3)	Sb6La3Ce1	0.66	2.3
PJ2	Pine Spruce	Conifer	Jack Pine	1, 3, 4	clearcut	sb+sw+bf+ce+la+pw+pj+pr+he > 0.7 and (bf+ce+pw+la+sw+he > 0.2 or pj > 0.3)	Pj6Sb3Po1	0.88	2.2
SP1	Spruce Pine	Conifer	Black Spruce	6b, 9, 5a,	clearcut	sb+sw+bf+ce+la+pw+pj+pr+he > 0.7	Sb7Pj1Po1Bf1	0.72	2.0
SF1	Spruce Fir	Conifer	Black Spruce	b, 11, 3	clearcut	po+bw+mh+uh+lh > 0.7 and po > 0.5	Sb4Bf3Sw2Po1	0.64	1.5
PO1	Poplar	Hardwood	Poplar	9, 6, 1	clearcut	po+bw+mh+uh+lh > 0.7 and po > 0.5	Po7Bw1Bf1Sb1	0.82	2.0
BW1	Birch Poplar	Hardwood	White Birch	10, 6, 7a, b	clearcut	po+bw+mh+uh+lh > 0.7	Bw5Po3Sb1Bf1	0.83	2.0
MW1	Jack Pine Mixed	Mixedwood	Jack Pine	6, 10, 1	clearcut	pj+pr > 0.2	Po4Pj3Sb2Bw1	0.82	2.3
MW2	Spruce Mixed	Mixedwood	White Birch	3a	clearcut	all remaining stands	Po4Sb2Bf2Sw1Bw1	0.74	1.9
				6a, b, c	clearcut				

Source: CMRMU 2003-2008 FMP

2.3 Average Planned Annual Harvest Volumes

Tables 3A and 3B provide a summary of the annualized planned and actual harvest volumes for the three plan terms. For comparison purposes the Cochrane - Moose River has been divided into the Moose River sub-unit and the Cochrane sub-unit for consistency.

MOOSE RIVER

On the Moose River there was a slight decrease in the overall planned volume from the 1993 to 1998 and 2003 plans with an increase in conifer volume and a decrease in planned hardwood volumes (Table 3A).

For the Moose River actual harvest volumes for the 1993 and 1998 plan terms showed an over achievement in PJ with shortfalls in spruce, fir, poplar, and white birch. The largest shortfalls were experienced in poplar and birch with less than half of the planned poplar volume being harvested with essentially no birch. Shortfalls were caused by discrepancies between FRI predictions and actual harvest volumes. There was also a bump request by remote tourism operators, which delayed blocks until late in the plan period, resulting in area left un-harvested (24%).

2005 Independent Forest Audit
Table 3A - Summary of Planned & Actual Harvest Volumes
MU: Moose River Unit

Average Planned Annual Harvest Volumes

Volumes are Annualized for the indicated 5 year period

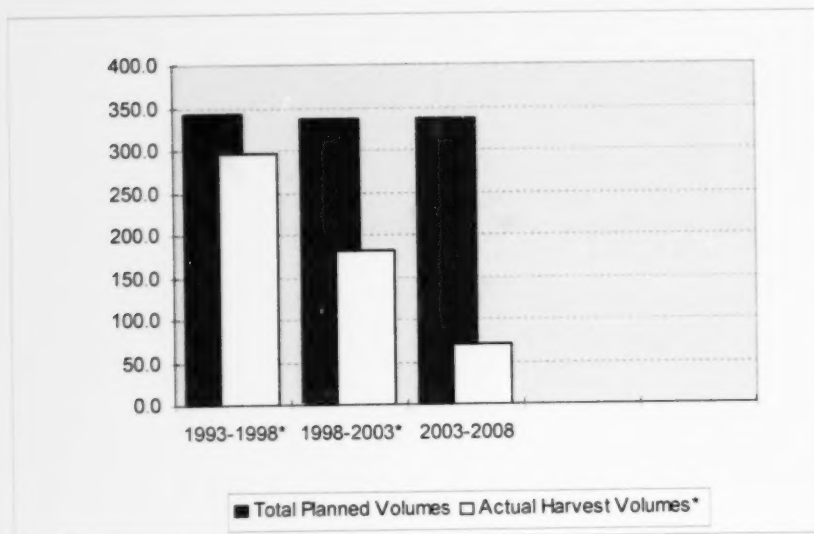
Species	Volume in '000's cubic metres		
	Past Plans		Current
	1993-1998	1998-2003	2003-2008
Pj	10,222	16,688	26,159.0
Spr	267,133	273,541	283,590.8
Bf	3,887	4,905	3,605.2
Oc	-	4,459	4,554.6
Po	50,151	34,762	16,335.0
Bw	10,588	1,839	2,023.8
	-	-	-
Total Planned Volumes	341,981.0	336,194.0	336,268.4

Actual Harvest Volumes

Volumes are Annualized for the indicated 5 year period

Species	Volume in '000's cubic metres		
	Past Plans		Current
	1993-1998	1998-2003	2003-2008
Pj	14,054.0	19,043.3	16,539
Sp1	254,855.0	143,506.9	51,120
Bf	4,578.0	4,543.4	1,410
Oc	311.0	5.5	-
Po	22,679.0	13,553.8	1,992
Bw	14.0	-	-
	-	-	-
Total Actual Volumes	296,491.0	180,653.0	71,061

Source: Planned TMP Table 4.18, Table FMP-21



Actual: RPFO-4, 1998 – 2003 Annual reports. 2003-2008 actual from 2003-2004 AR

For the 1998 – 2003 plan term PJ volume was again over achieved but there was a significant under achievement in spruce, poplar, other conifer, and birch. Early in the FMP decisions were made to harvest volume from other forests that were near the end of their terms reducing the harvest level. Construction of the Chabbie Road, which was scheduled to begin in 1998, did not proceed on time due to the late approval of the FMP. This road construction did not begin until the 1999 – 2000 AWS year reducing the area available for harvest. Lack of aggregate slowed road construction and dramatically increased cost. First Nation issues emerged as the plan progressed resulting in a number of blocks being left partially un-harvested. The softwood lumber dispute further reduced the demand as the Cochrane mill went to one shift. The completion of the OLL boundaries also resulted in blocks being un-available for harvest. An amendment to replace these blocks was never processed.

For the 2003-2008 FMP volumes reported in table 3A reflect harvest volume from the 2003-2004 AWS year only. Volumes were well below the planned annual volume in the FMP. Continuing pressure as a result of poor lumber prices, and the US softwood lumber countervail duties resulted in the short term shut down of the Cochrane sawmill that in turn temporarily reduced demand for fibre from this forest. Not reflected in the 2003-2004 volumes is approximately 60,000 m³ of conifer hauled to stockpile and delivered in the 2004-2005 AWS year. These volumes have yet to be reported in an annual report.

COCHRANE MANAGEMENT UNIT

Planned harvest volumes showed a decrease from the 1993 to 1998 plan terms. The most significant reduction was in poplar (50%). The planned harvest in spruce also decreased by 19 %. The decreases are most likely due to a decrease in yields and a decline in the amount

of mature and over-mature forest area. Planned volumes rebounded from the 1998 to 2003 FMP with a significant increase in the planned poplar volume. Planned conifer volumes showed a slight increase between the plan terms.

For the 1993 – 1998 plan term there was a significant under-achievement of the planned volumes for both conifer and hardwood, the most significant of which was poplar at 48% of the planned. DCL's did not harvest their anticipated volumes (DCL's were limited to 65 ha per year until 1995). Approximately 30% of the FMP was not harvested.

For the 1998 – 2003 plan term there was again a significant under-achievement in the planned versus actual harvest volumes. The most significant was in poplar with only 62% of the planned volume harvested. This is most likely a result of under achievement in the harvest in the mixed conifer and mixedwood forest units.

For the 2003-2008 FMP volumes reported in table 3B reflect harvest volume from the 2003-2004 AWS year only. Hardwood volumes were well below the planned annual volume in the FMP. Norbord only harvested one of its nine blocks in the AWS opting to increase harvest levels in the 2004-2005 AWS.

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Table 3B - Summary of Planned & Actual Harvest Volumes
MU: Cochrane Management Unit

Average Planned Annual Harvest Volumes

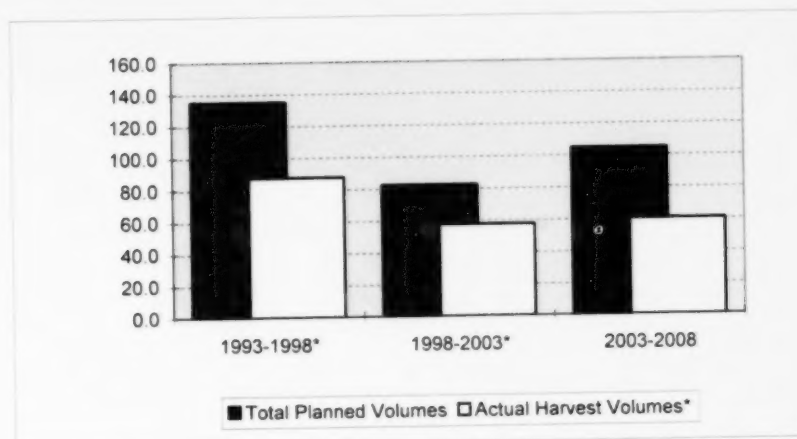
Volumes are Annualized for the indicated 5 year period

Species	Volume in '000's cubic metres		
	Past Plans		Current
	1993-1998	1998-2003	2003-2008
Pj	940	296	-
Spr	48,855	39,334	36,689.0
Bf	12,201	2,240	5,503.6
Oc	231	4,309	5,381.8
Po	69,622	35,092	53,451.8
Bw	3,030	1,009	3,598.2
	-	-	-
Total Planned Volumes	134,879.0	82,280.0	104,624.4

Actual Harvest Volumes

Volumes are Annualized for the indicated 5 year period

Species	Volume in '000's cubic metres		
	Past Plans		Current
	1993-1998	1998-2003	2003-2008
Pj	1,326.0	-	-
Sp1	41,062.0	33,578.0	39,327
Bf	9,698.0	1,442.0	3,097
Oc	70.0	127.0	4,543
Po	33,470.0	21,655.0	13,105
Bw	1,939.0	729.0	281
	-	-	-
Total Actual Volumes	87,565.0	57,531.0	60,353



2.4 Summary of Planned and Actual Harvest Area

Table 4 (RPFO – 2) provides a comparison of the annualized planned and actual area harvested for the 1993, 1998 and 2003 plans. Information in the table was taken from the Report of Past Forest Operations in the 2003 FMP, the 1998 to 2004 annual report tables, and table FMP-18 from the 1998 and 2003 plans.

MOOSE RIVER

For the 1993 – 1998 FMP the harvest area was under-achieved by 23%. A bump-up request during plan development that was not settled until late in the plan term resulted in harvest area left standing. Some of the area substituted in the FMP required long access routes for relatively small amounts of wood. Others required returning to areas previously harvested where the majority of the volume had already been harvested. As a result many of these areas were left standing. The most significant underachievement was in the SP2 and SP3 forest units.

For the 1998 – 2003 FMP the harvest was significantly less than planned. As mentioned previously early in the FMP decisions were made to harvest volume from other forests that were near the end of their terms reducing the harvest level. Construction of the Chabbie Road, which was scheduled to begin in 1998, did not proceed on time due to the late approval of the FMP. This road construction did not begin until the 1999 – 2000 AWS year reducing the area available for harvest. Lack of aggregate slowed road construction and dramatically increased cost. First Nation issues emerged as the plan progressed resulting in a number of blocks being left partially un-harvested. The softwood lumber dispute further reduced the demand as the Cochrane mill went to one shift. The completion of the OLL boundaries also resulted in blocks being un-available for harvest. An amendment to replace these blocks was never processed. Bypass levels in the last 3 years of the FMP were also significant. Inaccuracies in the FRI were significant and bypass was primarily due to small wood size. Again the most significant underachievement was in the SP2 and SP3 forest units.

For the 2003-2008 FMP the harvest area for the 2003-2004 AWS was well below the average annual planned in the AWS. Harvest in the Cochrane area was focused on other forest in the district that were approaching the end of their plan terms. Continuing pressure as a result of poor lumber prices, and the US softwood lumber countervail duties resulted in the short term shut down of the Cochrane sawmill that in turn temporarily reduced demand for fibre from this forest.

Overall the trend on the Moose River for the last several plan terms has been significant underachievement of the planned harvest levels.

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Table 4 - Summary of Planned and Actual Depletion Area

RPFO-2 SUMMARY REPORT OF DEPLETION AREA:
COMPARISON TO THE SELECTED MANAGEMENT ALTERNATIVE*

Moose River Management Unit

Plan Term 1993-1998

Forest Unit	Harvest and Bypass			Reserves			Fire		Insects		Other		Total		
	Available Harvest Area (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)
Pine	0	316	300	0	3	14	0	798	0	0	0	0	0	319	1112
SP1	3727	1739	1446	112	66	33	0	772	0	0	0	0	3839	1805	2251
SP2	11357	9722	7962	341	388	304	0	4869	0	0	0	0	11698	10110	12831
SP3	0	7554	5405	0	233	178	0	10940	0	0	0	0	0	7787	16523
SP4	0	83	87	0	0	0	0	1403	0	0	0	0	0	7	6
BF	0	7	6	0	0	0	0	0	0	0	0	0	0	1917	1195
Po	1639	1786	1089	49	131	90	0	16	0	0	0	0	1688	576	369
BW	0	533	367	0	43	2	0	0	0	0	0	0	0		
Total	16723	21740	16662	502	864	621	0	18798	0	0	0	0	17225	22521	35777

Source 93-98 MR RPFO

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Table 4 - Summary of Planned and Actual Depletion Area

RPFO-2 SUMMARY REPORT OF DEPLETION AREA:

COMPARISON TO THE SELECTED MANAGEMENT ALTERNATIVE*

Moose River Management Unit 1998-2003

Forest Unit	Harvest and Bypass			Reserves			Fire		Insects		Other		Total		
	Available Harvest Area (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)
Pine	1090	820	715	98	129	148	0	0	0	0	0	0	1188	949	863
SP1	1855	1655	1546	167	143	188	0	22	0	0	0	0	2022	1798	1756
SP2	9045	8742	6414	814	566	608	0	22	0	0	0	0	9859	9308	7044
SP3	6735	6631	2498	606	375	349	0	348	0	0	0	0	7341	7006	3195
BF	205	14	21	18	3	3	0	0.3	0	0	0	0	223	17	24.3
Po	915	937	461	82	177	191	0	16.7	0	0	0	0	997	1114	668.7
OC	10	3	2	1	1	1	0	1	0	0	0	0	11	10	4
BW	160	102	68	14	15	23	0	0	0	0	0	0	174	117	91
Total	20015	18910	11725	1800	1409	1511	0	410	0	0	0	0	21815	20319	13646

Source 1998 -2003 FMP tables 18,19 & AR's

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Table 4 - Summary of Planned and Actual Depletion Area

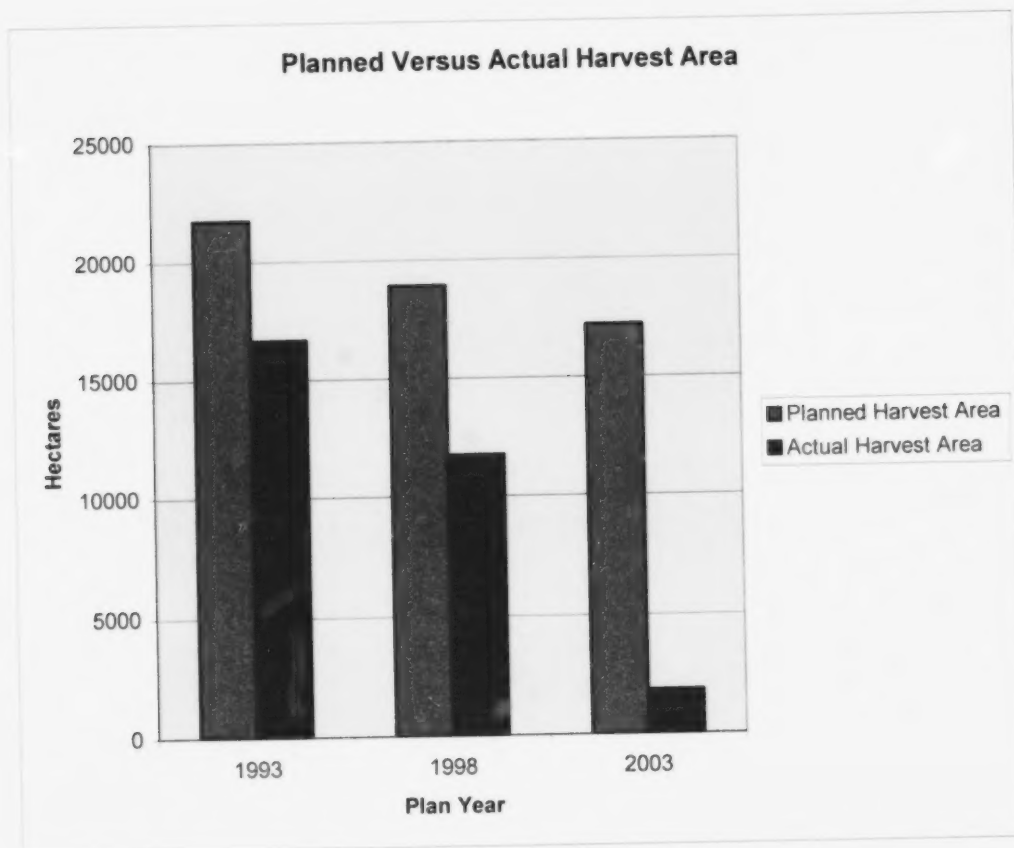
RPFO-2 SUMMARY REPORT OF DEPLETION AREA:

COMPARISON TO THE SELECTED MANAGEMENT ALTERNATIVE*

CMRMU 2003-2008 Moose River Sub-unit

Forest Unit	Harvest and Bypass			Reserves			Fire		Insects		Other		Total		
	Available Harvest Area (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)
BW1	0	0		2.8	0		0	0	0	0	0	0	2.8	0	0
LC1	472	470.3	25	59.1	32.4	7.2	0	0	0	0	0	0	108.4	77.3	32.2
MW1	51.5	50.9	14	56.9	26.4	0.6	0	0	0	0	0	0	473.8	448.4	14.6
MW2	365	365.3	40.6	108.8	83.1	28	0	0	0	0	0	0	840.2	695.8	68.6
PJ1	630	629.5	211.2	210.2	66.3	5.9	0	0	0	0	0	0	698.5	624.2	217.1
PJ2	548	547.9	63.7	150.5	76.3	1.5	0	0	0	0	0	0	698.5	624.2	65.2
PO1	198.5	196.4	25.2	86.6	4.3	2.7	0	0	0	0	0	0	285.1	200.7	27.9
SBC	12999.5	12999.7	1115.8	1600.8	595.8	98.5	0	0	0	0	0	0	14600.3	13595.5	1214.3
SBH	177.5	179.5	5.4	45	7.9	24.2	0	0	0	0	0	0	222.5	187.4	29.6
SF1	189	189.7	13.4	153.8	35.9	0	0	0	0	0	0	0	342.8	225.6	13.4
SP1	1552	1549.1	330	230.2	45.3	20.5	0	0	0	0	0	0	1782.2	1594.4	350.5
Total	17183	17178.3	1844.3	2320.7	973.7	168.6	0	0	0	0	0	0	19356.6	17649.3	1669.5

Source 2003-2008 FMP 18, FMP19



COCHRANE

For the 1993 – 1998 plan term there was a significant under-achievement of the planned harvest area. DCL's did not harvest their anticipated volumes (DCL's were limited to 65 ha per year until 1995). Approximately 30% of the FMP was not harvested.

For the 1998 – 2003 plan term there was a significant under-achievement of the planned harvest area. In the 1998-99, 2000-01, and 2001-02 annual reports it was noted that several of the licensee's did not harvest their full allocation and there were instances where licensee's had outstanding management fees and did not harvest.

For the 2003 – 2008 plan term the harvest area in the 2003-2004 AWS period is less than the average annual rate in the FMP. The independent licensees on the unit were issued a two-year license to cover the 2003-2005 period. Many of the licensees on the unit chose not to harvest on the unit in 2003-2004 or decided to harvest only a portion of their license, leaving the remainder of the harvest area for the 2004-2005 AWS.

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Table 4 - Summary of Planned and Actual Depletion Area

RPFO-2 SUMMARY REPORT OF DEPLETION AREA:
COMPARISON TO THE SELECTED MANAGEMENT ALTERNATIVE*

Cochrane Management Unit Plan Term 1993-1998

Forest Unit	Harvest and Bypass			Reserves			Fire		Insects		Other		Total		
	Available Harvest Area (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)
Pj	49	49	11			0	0	0	0	0	0	0	49	49	10.9
SP1	2055	2055	1755			171.6	0	0	0	0	0	0	2055	2055	1926.4
SP3	660	660	449			15.1	0	0	0	0	0	0	660	660	449
SP4	83	83	42			1	0	0	0	0	0	0	83	83	43.4
BF	406	406	223			15.8	0	0	0	0	0	0	406	406	238.9
Po	2768	2768	1747			353.6	0	0	0	0	0	0	2768	2768	2100.5
Po4	11	11	2			0	0	0	0	0	0	0	11	11	2
Bw	347	347	138			0	0	0	0	0	0	0	347	347	137.6
Total	6379	6379	4367	0	0	557.1	0	0	0	0	0	0	6379	6379	4908.7

Source 93-98 CMU RPFO

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Table 4 - Summary of Planned and Actual Depletion Area

RPFO-2 SUMMARY REPORT OF DEPLETION AREA:
COMPARISON TO THE SELECTED MANAGEMENT ALTERNATIVE*
Cochrane Management Unit 1998-2003

Forest Unit	Harvest and Bypass			Reserves			Fire		Insects		Other		Total		
	Available Harvest Area (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)
SP1	657	620	485.8	143	143	110	0		0	0	0	0	800	763	595.8
SP2	687	745	785.4	192	192	111	0		0	0	0	0	879	937	896.4
SP3	381	375	317.6	33	33	13	0		0	0	0	0	414	408	330.6
PO1	1158	1162	1235.3	211	211	198	0		0	17.1	0	0	1369	1373	1450.4
PO3	236	242	185.9	32	32	31	0		0	0	0	0	268	274	216.9
MxCon	1934	1891	1224.6	299	299	206	0		0	0	0	0	2233	2190	1430.6
MxHwd	52	106	127.2	16	16	14	0		0	0	0	0	68	122	141.2
MxWd	731	741	494.5	112	112	96.3	0		0	0	0	0	843	853	590.8
OCON	623	453	167	24	24	16.7	0		0	0	0	0	647	477	183.7
BF1	0	0	50.4	0	0	5	0		0	0	0	0	0	0	55.4
JP1	0	22	0	1	1	0	0		0	0	0	0	1	23	0
Total	6459	6357	5073.7	926	926	801	0	0	0	17.1	0	0	6031	7420	5891.8

Source 1998 -2003 FMP tables 18,19 & AR's

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Table 4 - Summary of Planned and Actual Depletion Area

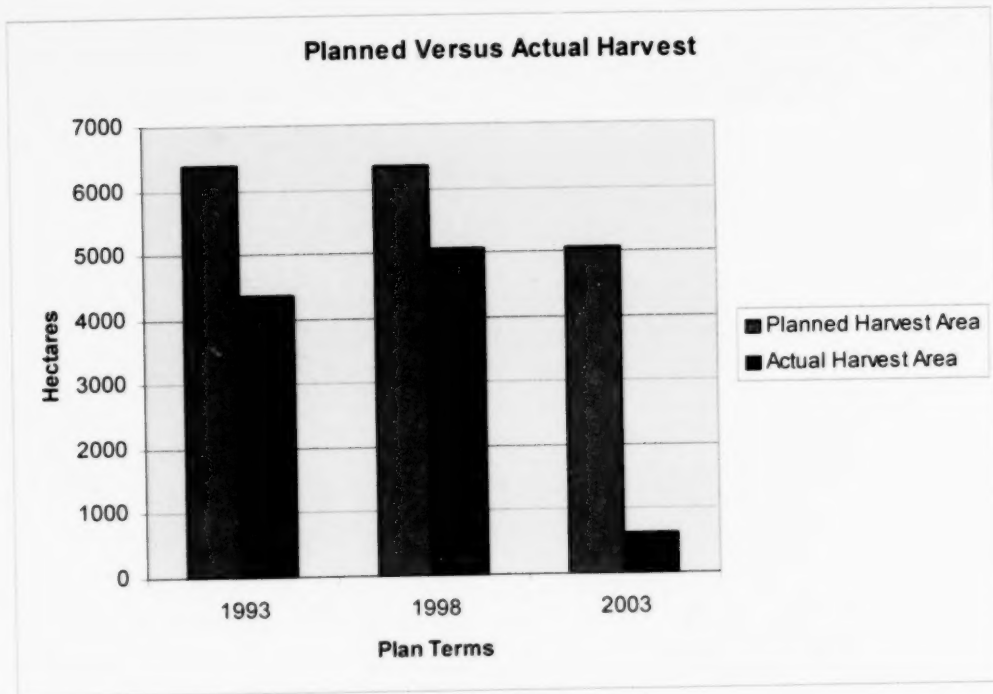
RPFO-2 SUMMARY REPORT OF DEPLETION AREA:

COMPARISON TO THE SELECTED MANAGEMENT ALTERNATIVE*

CMRMU 2003-2008 Cochrane Sub-unit

Forest Unit	Harvest and Bypass			Reserves			Fire		Insects		Other		Total		
	Available Harvest Area (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)
BW1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LC1	686.5	686.4	152.1	76.5	41.6	7.8	0	0	0	0	0	0	0	0	0
MW1	0	0	0	0	0	0	0	0	0	0	0	0	800.7	704.9	78.4
MW2	619	619.1	77.3	181.7	85.8	1.1	0	0	0	0	0	0	0	0	0
PJ1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PJ2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PO1	1894	1892.9	154.6	307.3	137.3	58.4	0	0	0	0	0	0	2201.3	2030.2	213
SBC	1394.5	1393.9	227.1	192	50.4	53.5	0	0	0	0	0	0	1586.5	1444.3	280.6
SBH	0.5	0	1.3	5.1	0	1.8	0	0	0	0	0	0	5.6	0	3.1
SF1	321	321	4.2	51.2	17.5	0	0	0	0	0	0	0	372.2	338.5	4.2
SP1	149	148.6	0.5	31.6	10.2	5.3	0	0	0	0	0	0	180.6	158.8	5.8
Total	5064.5	5061.9	612.4	845.4	342.8	122.6	0	0	0	0	0	0	5146.9	4676.7	575.1

Source 2003-2008 FMP 18, FMP19



2.5 Summary of Managed Productive Forest by Forest Unit

MOOSE RIVER

Tables 5A through 5C provide a summary of the managed forest by forest unit for the three plan terms for the Moose River sub-unit (formerly the MRMU). From the 1993 to 1998 plans the available managed forest increased from 355,000 ha to 432,000 ha. The 1993 plan was created with two working circles. The southern working circle (considered accessible) and the northern working circle (considered in-accessible). The northern working circle was not included in the available area for the 1993 plan. In the 1998 FMP the working circles were eliminated and the entire unit was taken into consideration for the table. The available area for the 2003 FMP was reduced to 404,000 ha. The OLL exercise was completed during the 1998 FMP and the new OLL areas were not included in the available area for the 2003 FMP. There was also a small boundary change and the area referred to as the "tail" was removed from the inventory and became part of the Smooth Rock Falls Forest in 2005.

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Table 5A - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

1993-1998 Moose River Unit

Working Group	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
PJ	B&S						5,677	
	FTG-20						1,336	
	21-40						319	
	41-60						1,111	
	61-80						4,484	
	81-100						2,199	
	101-120						1,741	
	121-140						707	
	141-160						473	
	161-180						216	
	181-200						-	
	201+						-	
Total PJ							18,263	
SB	B&S						45,918	
	FTG-20						1,698	
	21-40						75	
	41-60						2,369	
	61-80						21,730	
	81-100						20,013	
	101-120						23,278	
	121-140						57,492	
	141-160						60,895	
	161-180						78,604	
	181-200						1,269	
	201+						665	
Total SB							314,006	
SW	B&S						1,374	
	FTG-20						483	
	21-40						-	
	41-60						-	
	61-80						-	
	81-100						-	
	101-120						-	
	121-140						-	
	141-160						-	
	161-180						-	
	181-200						-	
	201+						-	
Total SW							1,857	

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Table 5A - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

1993-1998 Moose River Unit

Working Group	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Bf	B&S						128	
	FTG-20						33	
	21-40						20	
	41-60						-	
	61-80						134	
	81-100						343	
	101-120						266	
	121-140						235	
	141-160						138	
	161-180						22	
	181-200						-	
	201+						-	
Total Bf							1,319	
Oc	B&S						8	
	FTG-20						-	
	21-40						-	
	41-60						-	
	61-80						26	
	81-100						-	
	101-120						18	
	121-140						99	
	141-160						93	
	161-180						195	
	181-200						-	
	201+						-	
Total Oc							439	
Po	B&S						5,446	
	FTG-20						-	
	21-40						7	
	41-60						867	
	61-80						3,145	
	81-100						3,988	
	101-120						1,559	
	121-140						908	
	141-160						233	
	161-180						64	
	181-200						-	
	201+						-	
Total Po							16,217	

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Table 5A - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

1993-1998 Moose River Unit

Working Group	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Bw	B&S						795	
	FTG-20						-	
	21-40						69	
	41-60						-	
	61-80						97	
	81-100						1,332	
	101-120						987	
	121-140						106	
	141-160						-	
	161-180						-	
	181-200						-	
	201+						-	
Total Bw							3,386	
Forest Unit Subtotal								
Total							355,487	

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Table 5B - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

1998-2003 Moose River Management Unit

Pine	0-10	11					1,580	
	11-20						1,872	7,488
	21-30						22	242
	31-40	49					153	4,284
	41-50	78					2,008	94,376
	51-60	19					943	58,466
	61-70						3,192	245,784
	71-80	21					2,728	242,792
	81-90	36					2,734	265,198
	91-100						1,591	159,100
	101-110						691	69,100
	111-120						619	58,805
	121-130						107	8,988
	131-140						128	7,936
	141-150							
	151-160							
	161-170							
	171-180							
	181-190						41	287
	191-200							
	200 +							
Pine - Forest Unit Subtotal		214					18,409	1,222,846
Sp2	0-10						7,847	
	11-20						1,007	
	21-30						845	5,070
	31-40						2,144	21,440
	41-50						5,627	84,405
	51-60						2,887	66,401
	61-70						12,258	441,288
	71-80						10,079	493,871
	81-90						11,245	674,700
	91-100						13,110	930,810
	101-110						7,532	590,509
	111-120						26,042	2,140,652
	121-130						28,348	2,230,988
	131-140						33,229	2,445,654
	141-150						13,447	915,741
	151-160						18,222	1,126,120
	161-170						218	11,140
	171-180						69	2,760
	181-190						105	3,266
	191-200							
	200 +							
SP2 - Forest Unit Subtotal							194,261	12,184,815

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Table 5B - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

1998-2003 Moose River Management Unit

Sp3	0-10	2,100					4,767	
	11-20						695	
	21-30						130	
	31-40	743					1,441	5,764
	41-50	89					2,080	16,640
	51-60	79					1,666	18,326
	61-70	1,914					11,483	183,728
	71-80	1,463					6,626	152,398
	81-90	1,665					4,591	165,276
	91-100	3,425					8,065	419,380
	101-110	6,697					9,316	586,908
	111-120	18,002					22,160	1,506,880
	121-130	38,374					37,327	2,575,563
	131-140	36,428					30,833	2,065,811
	141-150	18,595					10,096	636,048
	151-160	25,686					12,072	712,248
	161-170	1,616					516	26,316
	171-180	632					218	8,720
	181-190	148					65	1,950
	191-200	43					11	275
	200 +							
SP3 - Forest Unit Subtotal		157,699					164,158	9,082,231
Sp1	0-10						4,520	
	11-20						2,970	5,940
	21-30						840	9,240
	31-40						816	19,584
	41-50						1,946	73,948
	51-60						596	35,164
	61-70						2,344	196,896
	71-80						1,161	115,868
	81-90						2,767	306,307
	91-100						2,575	298,443
	101-110						647	72,852
	111-120						621	65,205
	121-130						2,383	228,768
	131-140						806	67,543
	141-150						678	47,460
	151-160						2,517	156,054
	161-170							
	171-180						46	1,509
	181-190						39	975
	191-200							
	200 +							
SP1- Forest Unit Subtotal							28,272	1,701,756

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Table 5B - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

1998-2003 Moose River Management Unit

Bf	0-10						2	
	11-20						296	1,480
	21-30						839	23,492
	31-40						790	35,550
	41-50						250	13,875
	51-60						1,022	65,510
	61-70						312	22,526
	71-80						414	31,091
	81-90						40	2,960
	91-100						140	9,814
	101-110						32	2,048
	111-120						49	2,499
	121-130							
	131-140							
	141-150							
	151-160							
	161-170							
	171-180							
	181-190							
	191-200							
	200 +							
Bf - Forest Unit Subtotal							4,186	210,845
OC	0-10							
	11-20							
	21-30							
	31-40							
	41-50						13	
	51-60						18	54
	61-70	1					50	950
	71-80	128					194	5,626
	81-90	164					158	5,846
	91-100	461					1,141	49,063
	101-110	270					142	6,674
	111-120	525					321	16,050
	121-130	1,672					493	24,650
	131-140	848					160	8,160
	141-150	37					175	8,750
	151-160	88					203	9,338
	161-170	63						
	171-180							
	181-190	351						
	191-200	84						
	200 +							
Oc - Forest Unit Subtotal		4,692					3,068	135,161

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Table 5B - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

1998-2003 Moose River Management Unit

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Po	0-10	74					1,285	
	11-20	94					7,449	
	21-30						718	15,796
	31-40						491	22,586
	41-50						705	57,810
	51-60	10					615	72,570
	61-70	113					2,391	375,387
	71-80	11					1,536	268,800
	81-90						1,635	294,300
	91-100	9					1,014	176,436
	101-110						520	75,400
	111-120						80	9,040
	121-130							
	131-140						43	2,236
	141-150							
	151-160							
	161-170							
	171-180							
	181-190							
	191-200							
	200 +							
Po - Forest Unit Subtotal		311					18,482	1,370,361
Bw	0-10						104	
	11-20						53	
	21-30						13	
	31-40							
	41-50	18					3	51
	51-60						40	1,760
	61-70						23	1,541
	71-80						567	49,329
	81-90						544	52,224
	91-100						249	24,527
	101-110							
	111-120							
	121-130						1	76
	131-140							
	141-150							
	151-160							
	161-170							
	171-180							
	181-190							
	191-200							
	200 +							
Bw - Forest Unit Subtotal		18					1,597	129,508
Total		162,934					432,433	26,037,523

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Table 5C - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

FMP-9A SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT

Moose River Sub-unit

Forest Unit	Age Class	Protection Forest		Unavailable		Stage of Management	Available	
		(ha)	(m ³)	(ha)	(m ³)		(ha)	(m ³)
BOG	1-20	2160	0.0					
	21-40	417.2	0.0					
	41-60	516.1	0.0					
	61-80	2642.9	0.0					
	81-100	6057.3	0.0					
	101-120	22150.8	0.0					
	121-140	76063.2	0.0					
	141-160	45556.4	0.0					
	161-180	3049.6	0.0					
	181-200	431.3	0.0					
	201-220	26.8	0.0					
	221-240							
Forest Unit Subtotal		159,071.7	0.0	0.0	0.0	0.0	0.0	0.0

Moose River Sub-unit

Forest Unit	Age Class	Protection Forest		Unavailable		Stage of Management	Available	
		(ha)	(m ³)	(ha)	(m ³)		(ha)	(m ³)
BW1	1-20			1	0.0		31.0	0
	21-40							
	41-60	18.2	91.0				12.0	480.0
	61-80			14	560.0			
	81-100			12	504.0		47.0	1,974.0
	101-120							
	121-140							
	141-160							
	161-180							
	181-200							
	201-220							
	221-240							
Forest Unit Subtotal		18.2	91.0	27.0	1,064.0	0.0	90.0	2,454.0

Moose River Sub-unit

Forest Unit	Age Class	Protection Forest		Unavailable		Stage of Management	Available	
		(ha)	(m ³)	(ha)	(m ³)		(ha)	(m ³)
LC1	1-20			135.1	0.0		322.0	181,125.65
	21-40			17.0	85.0		323.0	1,521.6
	41-60			29.4	366.1		479.0	7,368.2
	61-80			88.0	2,387.0		628.0	33,321.5
	81-100	20.8	511.0	269.9	2,387.0		2,162.0	184,373.4
	101-120	34.9	875.0	281.3	3,305.7		1,849.0	158,121.3
	121-140	108.4	2,288.0	480.3	3,500.5		4,079.0	288,157.8
	141-160	55.0	1,155.0	719.2	507.4		4,398.0	308,572.7
	161-180	67.6	1,139.0	8.7	0.0		15.0	545.8
	181-200	443.3	6,645.0				8.0	
	201-220							
	221-240							
Forest Unit Subtotal		730.0	12,613.0	2,029.0	12,538.8	0.0	14,263.0	982,103.5

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Table 5C - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

FMP-9A SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT

Moose River Sub-unit

Woose River Sub-unit								
Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
MW 1	1-20	76.8	0.0	16.0	0.0		380.0	40,330,538
	21-40			63.1	613.3		96.0	250.9
	41-60			248.9	6,909.3		85.0	8,785.6
	61-80			172.2	4,009.8		481.0	72,150.2
	81-100			140.9	2,280.6		280.0	50,890.6
	101-120			2.0	280.0		26.0	3,840.0
	121-140			14.0	26,460.0		26.0	3,738.0
	141-160							
	161-180							
	181-200							
	201-220							
	221-240							
Forest Unit Subtotal		76.8	0.0	657.0	40,552.9	0.0	1,374.0	139,695.7

Moose River Sub-unit

Moose River Sub-unit								
Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
MW2	1-20	76.8	0.0	167.0			1,916.0	11,910,121.2
	21-40			194.6	1,285.8		1,513.0	25,692.8
	41-60	10.0	100.0	91.8	3,008.6		731.0	71,473.4
	61-80	21.2	210.0	431.9	23,641.9		1,591.0	250,836.1
	81-100	11.5	110.0	524.0	40,891.6		1,566.0	230,672.2
	101-120			91.1	4,087.7		479.0	63,429.2
	121-140			28.0	2,080.0		215.0	15,973.6
	141-160			24.1	61.9		77.0	4,628.4
	161-180							
	181-200							
	201-220							
	221-240							
Forest Unit Subtotal		119.5	420.0	1,552.6	74,457.5	0.0	8,088.0	674,615.7

Moose River Sub-unit

Moose River Sub-unit								
Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
PJ1	1-20			348.0			3,567.0	8240.9
	21-40			93.0			843.0	12,904.3
	41-60	95.8	190.0	88.8	395.5		1,222.0	104,370.0
	61-80	6.7	15.0	326.2	0.0		1,940.0	274,418.2
	81-100	16.8	32.0	411.9	2,114.8		2,588.0	417,147.1
	101-120			81.0	12,195.0		830.0	124,976.8
	121-140			1.0	69.0		28.0	1,951.9
	141-160							
	161-180							
	181-200							
	201-220							
	221-240							
Forest Unit Subtotal		119.3	237.0	1,350.0	14,774.2	0.0	11,018.0	944,009.1

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Table 5C - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

FMP-9A SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT

Moose River Sub-unit

Forest Unit	Age Class	Protection Forest		Production Forest			Available	
		(ha)	(m ³)	Unavailable		Stage of Management	(ha)	(m ³)
				(ha)	(m ³)			
PJ2	1-20	0.1	0.0	5.0			562.0	199.8
	21-40			26.0			123.0	1,365.9
	41-60	56.8	1,000.0	439.2	26,194.4		811.0	51,719.1
	61-80			467.0	28,927.0		2,175.0	239,341.1
	81-100	37.7	660.0	341.9	16,652.7		1,355.0	212,391.0
	101-120			164.3	11,933.3		505.0	82,880.7
	121-140			28.0	2,155.0		161.0	12,396.1
	141-160						9.0	269.3
	161-180						41.0	1,325.4
	181-200							
	201-220							
	221-240							
Forest Unit Subtotal		94.6	1,660.0	1,471.4	85,862.5	0.0	5,742.0	601,888.5

Moose River Sub-unit

Forest Unit	Age Class	Protection Forest		Production Forest			Available	
		(ha)	(m ³)	Unavailable		Stage of Management	(ha)	(m ³)
				(ha)	(m ³)			
PO1	1-20			225.6	339.3		2,084.0	23,841.4
	21-40			484.6	243.0		3,068.0	84,663.0
	41-60			14.0	1,618.0		174.0	20,118.9
	61-80			132.7	873.3		1,034.0	192,158.8
	81-100			154.3	3,210.4		1,004.0	196,407.9
	101-120			8.2	0.0		90.0	15,393.2
	121-140			26.3	0.0		14.0	848.0
	141-160			69.0	0.0			
	161-180			3.3	0.0			
	181-200							
	201-220			161.6	2,925.0			
	221-240							
Forest Unit Subtotal		0.0	0.0	1,279.6	9,209.0	0.0	7,468.0	533,431.2

Moose River Sub-unit

Forest Unit	Age Class	Protection Forest		Production Forest			Available	
		(ha)	(m ³)	Unavailable		Stage of Management	(ha)	(m ³)
				(ha)	(m ³)			
SBC	1-20			4756.9	0.0		46,910.0	3173.5
	21-40			798.9	33.6		5,963.0	18,701.3
	41-60			659.1	1260.2		8,497.0	63,484.1
	61-80			2061.9	30271.4		25,349.0	1,377,724.2
	81-100			2915.9	51215.8		32,520.0	3,527,121.4
	101-120			3553.8	22841.0		45,165.0	4,618,973.2
	121-140			7421.9	36985.0		88,257.0	7,920,362.7
	141-160			4859.5	14466.8		49,449.0	3,983,560.9
	161-180			309.9	21798.0		955.0	67,370.0
	181-200			29	1792.0		197.0	12,178.1
	201-220							
	221-240			6884.3	127864.0			
Forest Unit Subtotal		0.0	0.0	34,851.2	308,328.4	0.0	303,262.0	21,592,649.4

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Table 5C - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

FMP-9A SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT

Moose River Sub-unit

Moose River Sub-unit								
Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
SBH	1-20							
	21-40							
	41-60							
	61-80							
	81-100							
	101-120			68.0			1,470.0	88,908.0
	121-140			395.5	4163.2		5,487.0	300,538.3
	141-160			547.5	2764.4		6,543.0	359,380.9
	161-180			31.0	1,493.0		251.0	12,091.5
	181-200			12.0	445.0		87.0	3,230.2
	201-220						11.0	265.6
	221-240							
Forest Unit Subtotal		0.0	0.0	1,054.0	8,865.6	0.0	13,849.0	764,414.6

Moose River Sub-unit

Moose River Sub-unit								
Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
SF1	1-20			141.0			3,009.0	105.8
	21-40			118.9	548.5		925.0	24,234.7
	41-60			439.4	22,769.2		1,252.0	83,539.9
	61-80			521.4	32,865.8		694.0	77,133.0
	81-100			428.3	17,734.2		924.0	97,371.7
	101-120			576.2	51,485.4		770.0	88,366.6
	121-140			933.7	56,399.6		1,448.0	112,888.4
	141-160			707.7	21,295.5		1,357.0	106,677.3
	161-180			24.0	1,465.0		59.0	3,603.9
	181-200							
	201-220							
	221-240			215.1	3,938.0			
Forest Unit Subtotal		0.0	0.0	4,105.7	228,501.3	0.0	10,438.0	593,921.3

Moose River Sub-unit

Moose River Sub-unit								
Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
SP1	1-20			101.0			3,658.0	1106.2
	21-40			154.5	1,906.1		963.0	14,930.0
	41-60			438.8	7,389.8		2,471.0	127,498.0
	61-80			1,183.8	58,397.7		4,660.0	563,057.9
	81-100			1,086.8	38,346.7		5,038.0	666,192.1
	101-120			979.1	62,351.4		3,345.0	405,421.5
	121-140			1,428.7	59,405.2		5,363.0	450,609.7
	141-160			625.8	9,691.5		3,448.0	249,730.5
	161-180			7.0	453.0		14.0	907.4
	181-200							
	201-220							
	221-240							
Forest Unit Subtotal		0.0	0.0	6,005.6	237,941.3	0.0	28,960.0	2,479,453.2
Grand Total		160,230.1	15,021.0	54,383.1	1,022,095.4	0.0	404,552.0	29,308,636.2

COCHRANE

Tables 5 D through 5F provide a summary of the managed forest by forest unit for the 3 plan terms for the Cochrane sub-unit (formerly the CMU). From the 1993 to 1998 plans the total available forest increased from 106,000 ha to 118,000 ha. The increase was the result of FRI updating for the 1998 plan. Areas identified as NSR/B&S in the 1993 plan had been re-interpreted and found to be free growing. From the 1998 to 2003 plan terms the available area decreased to 91,000 ha. The boundaries of the unit changed during the development of the 2003 FMP and the areas around the Town of Smooth Rock and the Inglis Township were removed from the unit and became part of the Smooth Rock Falls Forest in 2005. There was also the removal of OLL from the available landbase.

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Table 5D - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

1993-1998 Cochrane Management Unit

Working Group	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
PJ	B&S						80	
	FTG-20						8	
	21-40						14	
	41-60						117	
	61-80						175	
	81-100						-	
	101-120						-	
	121-140						-	
	141-160						-	
	161-180						-	
	181-200						-	
	201+						-	
Pj Forest Unit Subtotal							394	

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Table 5D - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

1993-1998 Cochrane Management Unit

SB	B&S						25,481	
	FTG-20						745	
	21-40						3,840	
	41-60						6,054	
	61-80						7,796	
	81-100						6,616	
	101-120						5,740	
	121-140						6,169	
	141-160						2,343	
	161-180						2,128	
	181-200						54	
	201+						.	
Sb Forest Unit Subtotal							66,966	
SW	B&S						34	
	FTG-20						.	
	21-40						45	
	41-60						.	
	61-80						11	
	81-100						.	
	101-120						.	
	121-140						.	
	141-160						.	
	161-180						.	
	181-200						.	
	201+						.	
Sw Forest Unit Subtotal							90	

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Table 5D - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

1993-1998 Cochrane Management Unit

Bf	B&S						1,190	
	FTG-20						-	
	21-40						327	
	41-60						1,543	
	61-80						2,394	
	81-100						250	
	101-120						79	
	121-140						60	
	141-160						-	
	161-180						-	
	181-200						-	
Bf Forest Unit Subtotal							5,843	
Oc	B&S						126	
	FTG-20						-	
	21-40						12	
	41-60						42	
	61-80						28	
	81-100						221	
	101-120						22	
	121-140						143	
	141-160						15	
	161-180						15	
	181-200						-	
Oc Forest Unit Subtotal							624	

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Table 5D - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

1993-1998 Cochrane Management Unit

Po	B&S						6,809	
	FTG-20						209	
	21-40						915	
	41-60						7,447	
	61-80						12,857	
	81-100						2,618	
	101-120						397	
	121-140						97	
	141-160						6	
	161-180						-	
	181-200						-	
	201+						-	
Po Forest Unit Subtotal							31,355	
Bw	B&S						214	
	FTG-20						-	
	21-40						-	
	41-60						434	
	61-80						617	
	81-100						19	
	101-120						36	
	121-140						-	
	141-160						-	
	161-180						-	
	181-200						-	
	201+						-	
Bw Forest Unit Subtotal							1,320	
							106,592	

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Table 5 E - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

1998-1993 Cochrane Management Unit

Working Group	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
PJ	B&S						29	
	FTG-20						97	
	21-40						13	
	41-60						82	
	61-80						99	
	81-100							
	101-120							
	121-140							
	141-160							
	161-180							
	181-200							
	201+							
PJ Forest Unit Subtotal							320	
SP1	B&S						525	
	FTG-20						2,492	1888
	21-40						871	14358
	41-60						1,593	132700
	61-80						1,463	188859
	81-100						3,121	480566
	101-120						259	41206
	121-140						371	55416
	141-160						166	21156
	161-180							
	181-200							
	201+							
SP1 Forest Unit Subtotal							10,861	936149

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Table 5 E - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

1998-1993 Cochrane Management Unit

SP2	B&S						3,699	0
	FTG-20						5,093	4685
	21-40						2,690	21181
	41-60						3,843	316842
	61-80						6,178	507040
	81-100						5,610	339668
	101-120						3,466	170300
	121-140						1,826	71285
	141-160						868	
	161-180							
	181-200							
	201+							
SP2 Forest Unit Subtotal							33,273	1431001
SP3	B&S						1,720	
	FTG-20						334	
	21-40						374	
	41-60						523	523
	61-80						1,190	2830
	81-100						1,336	42058
	101-120						1,619	77539
	121-140						2,266	127438
	141-160						244	13818
	161-180							
	181-200							
	201+							
SP3 Forest Unit Subtotal							9,606	264206

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Table 5 E - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

1998-1993 Cochrane Management Unit

BF 1	B&S						146	
	FTG-20						405	58
	21-40						27	923
	41-60						256	24718
	61-80						27	3918
	81-100						8	1344
	101-120							
	121-140						21	798
	141-160							
	161-180							
	181-200							
	201+							
Bf Forest Unit Subtotal							890	31759
OCON	B&S						146	
	FTG-20						30	
	21-40						87	162
	41-60						449	2388
	61-80						872	29691
	81-100						1,001	65351
	101-120						747	55625
	121-140						278	19292
	141-160						83	4789
	161-180							
	181-200							
	201+							
OOCN Forest Unit Subtotal							3,693	177298

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Table 5 E - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

1998-1993 Cochrane Management Unit

PO1	B&S						2,652	
	FTG-20						2,937	618
	21-40						422	17746
	41-60						4,916	582921
	61-80						8,402	1296763
	81-100						716	109997
	101-120							
	121-140							
	141-160							
	161-180							
	181-200							
	201+							
PO1 Forest Unit Subtotal							20,045	2008045
PO3	B&S						239	
	FTG-20						297	
	21-40						76	364
	41-60						59	3127
	61-80						1,367	92194
	81-100						87	6090
	101-120						25	1100
	121-140							
	141-160							
	161-180							
	181-200							
	201+							
PO3 Forest Unit Subtotal							2,150	102875

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Table 5 E - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

1998-1993 Cochrane Management Unit

MxCON	B&S						-	87
	FTG-20						1,053	7179
	21-40						4,346	70230
	41-60						4,382	233710
	61-80						3,842	313540
	81-100						1,655	134872
	101-120						763	52332
	121-140						545	27954
	141-160							
	161-180							
	181-200							
	201+							
Mx CON Forest Unit Subtotal							16,673	839904
MxHwd	B&S						165	284
	FTG-20						155	9728
	21-40						283	181077
	41-60						1,963	446506
	61-80						3,482	40340
	81-100						299	
	101-120							
	121-140							
	141-160							
	161-180							
	181-200							
	201+							
MxHwd Forest Unit Subtotal							6,347	677935

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Table 5 E - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

1998- 1993 Cochrane Management Unit

MxWd	B&S						152	458
	FTG-20						1,217	32309
	21-40						5,219	346487
	41-60						5,954	624200
	61-80						1,607	189551
	81-100						218	21036
	101-120						137	8905
	121-140							
	141-160							
	161-180							
	181-200							
	201+							
MxWd Forest Unit Subtotal							14,504	1222944
ALL	B&S						9,321	0
	FTG-20						12,079	3391
	21-40						7,113	87584
	41-60						23,249	1370600
	61-80						33,416	3243433
	81-100						17,627	1755877
	101-120						7,989	671046
	121-140						5,662	434481
	141-160						1,906	139002
	161-180							
	181-200							
	201+							
ALL Forest Unit Subtotal							118,362	7705414

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Table 5 F - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

FMP-9B SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Cochrane Sub-Unit**

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
BOG	1-20		0.0	23.1				
	21-40	0						
	41-60	8.8	0.0					
	61-80	240.8	0.0					
	81-100	244.9	0.0					
	101-120	462.3	0.0					
	121-140	993.1	0.0					
	141-160	306.8	0.0					
	161-180							
	181-200							
	201-220							
	221-240							
Forest Unit Subtotal		2,256.7	0.0	23.1	0.0	0.0	0.0	0.0

FMP-9B SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Cochrane Sub-Unit**

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
BW1	1-20						192.0	663.9
	21-40						89.0	0.0
	41-60	35.7	993.4				228.0	19,033.0
	61-80						244.0	26,098.8
	81-100						125.0	17,978.3
	101-120							
	121-140							
	141-160							
	161-180							
	181-200							
	201-220			32.9	112.7			
	221-240							
Forest Unit Subtotal		35.7	993.4	32.9	112.7		878.0	63,774.0

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Table 5 F - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

FMP-9B SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Cochrane Sub-Unit**

Cochrane Sub-Unit		Production Forest						
Forest Unit	Age Class	Protection Forest		Unavailable		Stage of Management	Available	
		(ha)	(m ³)	(ha)	(m ³)		(ha)	(m ³)
LC1	1-20						1,506.0	18.0
	21-40						349.0	3,196.4
	41-60						2,732.0	63,709.0
	61-80						3,594.0	188,706.4
	81-100						2,805.0	215,808.3
	101-120	35.9	906.3				1,369.0	103,684.8
	121-140	135.6	2,985.0				755.0	49,865.5
	141-160	91.0	1,487.0				443.0	21,709.0
	161-180							
	181-200							
	201-220							
	221-240			132.0	2,156.0			
Forest Unit Subtotal		262.4	5,378.3	132.0	2,156.0		13,553.0	646,697.5

FMP-9B SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Cochrane Sub-Unit**

Cochrane Sub-Unit		Production Forest						
Forest Unit	Age Class	Protection Forest		Unavailable		Stage of Management	Available	
		(ha)	(m ³)	(ha)	(m ³)		(ha)	(m ³)
LH1	1-20			3.7	0.0		4.0	0.0
	21-40						2.0	56.9
	41-60						9.0	205.9
	61-80						12.0	2,597.8
	81-100							
	101-120							
	121-140							
	141-160							
	161-180							
	181-200							
	201-220							
	221-240							
Forest Unit Subtotal		0.0	0.0	3.7	0.0	0.0	27.0	2,860.6

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Table 5 F - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

FMP-9B SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Cochrane Sub-Unit**

Cochrane Sub-Unit								
Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
MW1	1-20						2.0	0.0
	21-40						7.0	363.2
	41-60						99.0	11577.0
	61-80						52.0	9156.3
	81-100							
	101-120							
	121-140							
	141-160							
	161-180							
	181-200							
	201-220							
	221-240							
Forest Unit Subtotal		0.0	0.0	0.0	0.0	0.0	160.0	21,096.5

FMP-9B SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Cochrane Sub-Unit**

Cochrane Sub-Unit								
Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
MW2	1-20						1,100.0	469.2
	21-40	4.6	54.5				1,087.0	38,656.4
	41-60						4,077.0	317,629.9
	61-80	8.8	315.0				4,755.0	510,767.9
	81-100	6.3	220.0				589.0	76,196.0
	101-120						139.0	15,224.5
	121-140						13.0	1,214.9
	141-160							
	161-180							
	181-200							
	201-220							
	221-240							
Forest Unit Subtotal		19.7	589.5	0.0	0.0		11,760.0	960,158.8

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Table 5 F - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

FMP-9B SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Cochrane Sub-Unit**

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
PJ1	1-20			28.8	0.0		45.0	0.0
	21-40						39.0	0.0
	41-60						119.0	10614.7
	61-80						34.0	4475.5
	81-100							
	101-120							
	121-140							
	141-160							
	161-180							
	181-200							
	201-220							
	221-240							
Forest Unit Subtotal		0.0	0.0	28.8	0.0	0.0	237.0	15,090.2

FMP-9B SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Cochrane Sub-Unit**

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
PJ2	1-20							
	21-40							
	41-60						60.0	5,357.7
	61-80						56.0	5,912.2
	81-100							
	101-120							
	121-140							
	141-160							
	161-180							
	181-200							
	201-220							
	221-240							
Forest Unit Subtotal		0.0	0.0	0.0	0.0	0.0	116.0	11,269.9

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Table 5 F - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

FMP-9B SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Cochrane Sub-Unit**

Cochrane Sub-Unit								
Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
PO1	1-20						3,412.0	1,006.8
	21-40						1,780.0	21,352.6
	41-60	17.8	715.0				8,065.0	1,080,016.9
	61-80	21.0	840.0				8,834.0	1,308,604.3
	81-100	17.8	712.0				378.0	52,416.7
	101-120						1.0	159.3
	121-140							
	141-160							
	161-180							
	181-200							
	201-220							
	221-240			1,779.0	63,643.0			
Forest Unit Subtotal		56.6	2,267.0	1,779.0	63,643.0	0.0	22,470.0	0.0

FMP-9B SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Cochrane Sub-Unit**

Cochrane Sub-Unit		Protection Forest		Production Forest				
Forest Unit	Age Class	(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
SBC	1-20			555.3	0.0		6,691.0	95.8
	21-40			28.5	14.0		2,416.0	1,213.5
	41-60						3,885.0	112,616.4
	61-80			19.4	1,278.0		6,488.0	436,559.8
	81-100			5.9	341.9		4,637.0	476,141.6
	101-120						3,130.0	284,835.9
	121-140						1,788.0	141,837.2
	141-160						302.0	24,932.7
	161-180							
	181-200							
	201-220							
	221-240							
Forest Unit Subtotal		0.0	0.0	609.1	1,633.9	0.0	29,337.0	1,478,232.9

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Table 5 F - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)

FMP-9B SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT

Cochrane Sub-Unit

Cochrane Sub-Unit		Production Forest						
Forest Unit	Age Class	Protection Forest		Unavailable		Stage of Management	Available	
		(ha)	(m ³)	(ha)	(m ³)		(ha)	(m ³)
SBH	1-20							
	21-40							
	41-60							
	61-80							
	81-100						162.0	8,610.9
	101-120						515.0	27,280.9
	121-140						278.0	15,048.0
	141-160							
	161-180							
	181-200							
	201-220							
	221-240							
Forest Unit Subtotal		0.0	0.0	0.0	0.0	0.0	955.0	50,939.9
FOREST BY FOREST UNIT								

FMP-9B SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT

Cochrane Sub-Unit

Cochrane Sub-Unit		Production Forest						
Forest Unit	Age Class	Protection Forest		Unavailable		Stage of Management	Available	
		(ha)	(m ³)	(ha)	(m ³)		(ha)	(m ³)
SF1	1-20						1,698.0	226.7
	21-40						2,485.0	28,607.0
	41-60						2,108.0	121,006.0
	61-80	15.3	470.0				1,541.0	161,151.3
	81-100	17.4	527.0				1,023.0	134,549.7
	101-120						178.0	21,742.8
	121-140						165.0	11,846.5
	141-160						92.0	9,382.4
	161-180							
	181-200							
	201-220							
	221-240			211.7	5,275.0			
Forest Unit Subtotal		32.7	997.0	211.7	5,275.0	0.0	9,290.0	488,512.4

2005 Independent Forest Audit
Table 5 F - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT (FMP-9)
FMP-9B SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
Cochrane Sub-Unit

Forest Unit	Age Class	Protection Forest		Production Forest			
		(ha)	(m ³)	Unavailable		Stage of Management	Available
				(ha)	(m ³)		(m ³)
SP1	1-20						215.0
	21-40						218.0
	41-60						634.0
	61-80						783.0
	81-100						438.0
	101-120						118.0
	121-140						24.0
	141-160						2.0
	161-180						
	181-200						
	201-220						
	221-240						
Forest Unit Subtotal		0.0	0.0	0.0	0.0	0.0	172,124.4
Grand Total		2,663.9	10225.2	2820.25	72820.63	0	3910757.12

2.6 Summary Report of Renewal, Tending and Protection Operations

Table 6 provides a comparison of renewal and tending activities for the three plan terms for both units. No protection efforts were either planned or carried out during the term of this report.

Moose River

Natural Regeneration

Natural regeneration for the 1993 to 1998 plan term shows significant short fall in planned levels of natural regeneration. The 1993 - 1998 Report of Past Forest Operations noted that the status of natural regeneration was incomplete as natural regeneration was only reported the 1996-1997 and 1997-1998 annual reports. The 1993 - 1998 plan forecasted 70% of the areas harvested would regenerate naturally.

For the 1998 - 2003 plan natural regeneration shows a shortfall from the planned level of natural regeneration. The shortfall was caused by the shortfall in the total harvest. There is an apparent error in FMP-25 as area identified for natural regeneration matches the harvest allocation by forest unit. From table FMP-25.4 the area forecasted for natural regeneration was 16,183 ha. The preferred treatment for Po and Bw forest units was natural regeneration adding an additional 1039 ha therefore the total forecasted natural regeneration to 17,222 ha.

For the 2003-2008 FMP the actual natural regeneration area only represents the 2003-2004 AWS year and a meaning trend cannot be determined. The 2003-2004 actual numbers are for the Cochrane and Moose River combined.

Artificial Regeneration

1993 -1998

Artificial regeneration for the 1993 - 1998 plan was significantly above the planned levels at 280% of the area forecasted in the plan. The most probable reason that the actual planting areas exceeded the planned levels was that additional funding was made available for renewal efforts on the unit. The same trend holds true for the seeding and site prep levels. The over achievement or underestimation in funding may have been in part due to the funding levels experienced from the 1988 to 1993.

Aerial seeding levels in the 1993 - 1998 plan also exceeded the planned amount at 275% of the forecast. Increased seeding efforts were a result of efforts to find successful lower cost artificial regeneration treatments and to treat inaccessible areas. Actual mechanical site preparation levels at 243% of those planned for the 5-year term. Again this is a reflection of funding levels.

700 ha of prescribed burn was slated for the 1993- 1998 plan period. During the 1993 - 1998 plan the management of the unit transferred from MNR to the company. During this

transition period the company assumed responsibility for renewal and tending activities on the unit. The MNR had planned the area for burning but it was not complete before the transition. From the time of the transition to the end of the plan the timing necessary to complete the planning for a prescribed burn was not available and the burn was never completed.

Aerial tending for the 1993 – 1998 plan period was 99% of the forecasted area.

1998-2003

Artificial regeneration for the 1998 – 2003 plan was again on target with the FMP with 96% of the planned area forecasted for treatment completed. The expected densities outlined in the FMP (1600 trees/ha) were not reached in most cases due to the abundance of natural regeneration found on site after harvest as a result of careful logging practices. Approximately 27% of areas treated using careful logging were found to need additional treatment due to the abundance of feather moss. These areas were identified with the use of post harvest careful logging surveys. The Aerial seeding was not conducted on the unit during the plan term and mechanical site prep was at 32% of the planned level. Mechanical site prep carried out during this plan term was conducted on an area approved through forestry futures funding. Forecast direct seeding for the 1998 plan was based on historic direct seeding levels. Experienced and information gained throughout the development of the 1998 plan showed that sites suitable for direct seeding were also suitable for natural regeneration through careful logging.

Chemical site prep and prescribed burning (slash pile burning) were carried out during the plan term although none was planned. Slash pile burning is used as a tool to reclaim areas lost to slash piles and was brought forward as part of the last IFA.

Aerial tending during the 1998-2003 plan term was less than forecasted in the FMP. The reduction in levels of tending is a reflection of the move in operational area from Fraserdale to the Chabbie and Kesagami areas, where sites tend to be less competitive.

2003-2008

In the 2003-2008 FMP artificial regeneration is forecasted to make up approximately one third of renewal efforts. Continual improvement in careful logging practices is expected to yield increasingly successful natural renewal efforts.

Cochrane

Natural Regeneration

Natural regeneration for the 1993 to 1998 plan term was 60% of the planned level. Natural regeneration areas were estimated in RPFO-7 of the 1993 – 1998 RPFO due to inconsistencies in reporting of naturally regenerated areas.

For the 1998 to 2003 plan term natural regeneration for the unit exceeded targets set out in the FMP. Natural regeneration levels were higher than anticipated with a significant portion of the area harvested using careful logging.

For the 2003-2008 FMP the actual natural regeneration area only represents the 2003-2004 AWS year and a meaning trend cannot be determined. The 2003-2004 actual numbers are for the Cochrane and Moose River combined.

Artificial Regeneration

1993 – 1998

Artificial regeneration for the 1993 – 1998 term was above the planned levels. Planting was 200% of the planned level. Tree plant levels were exceeded due to availability of funding, seedlings, and sites conducive to artificial treatment methods. Mechanical site prep was 160% of the planned area. The increase in site prep corresponds to the increase in sites requiring tree plant. Aerial tending were 126% of the planned level. Again, a result of the increase in the artificial renewal.

No prescribed burning operations were conducted during the plan term.

1998 – 2003

Artificial regeneration levels were significantly under-achieved for tree plant, site prep, and tending. Tree plant levels were at 34% of planned, site prep was at 7% of the planned level, and tending levels were at 25% of planned levels. Under the renewal services agreement signed in 2001 Tembec assumed management of the renewal program on the unit. Tembec planned 600,000 trees for outplant in 2003. Tembec also planned a 620 ha spray project in the 2002-2003 AWS but the program was cancelled when public spray notices were not advertised in time for the program to be carried out before leaf drop.

2003-2008

In the 2003-2008 FMP artificial regeneration is forecasted to make up approximately one third of renewal efforts. Continual improvement in careful logging practices is expected to yield increasingly successful natural renewal efforts.

2005 Independent Forest Audit
**Table 6 - SUMMARY REPORT OF RENEWAL, TENDING
AND PROTECTION OPERATIONS (RPFO-7)
Cochrane Moose River Management Unit**

	Area Summary of all Forest Units (ha)										
	1993-1998					1998-2003				2003-2008	
	MRMU		CCMU			MRMU		CCMU		CMRMU	
	Planned	Actual	Planned	Actual		Planned	Actual	Planned	Actual	Planned	Actual
Renewal											
Regeneration											
Uneven-Aged Management											
Selection Cut - Harvest	0	0	0	0	0	0	0	0	0	0	0
Total Uneven-Aged Management	0	0	0	0	0	0	0	0	0	0	0
Even-Aged Management											
Natural Regeneration											
Clearcut	15464	7926	4317	2601	17222	13626	1773	1758	14090	1625	
Careful logging							2665	2934			
Strip Cut	0	0	0	0	0	0	0	0	0	0	
Seed Tree Cut	0	0	0	0	0	0	0	0	0	0	
Uniform Shelterwood Seed Cut			0	0	0	0	0	0	0	0	
Subtotal Natural	15464	7926	4317	2601	17222	13626	4440	4692	14090	1625	
Artificial Regeneration											
Planting	1775	4979	881	1797	4657	4485	1401	478	6781	2410	
Seeding direct	800	2204	64	0	1829	0	0	0	0	0	
with site preparation	0	0	0	0	0	0	0	0	0	0	
Scarification	0	0	560	0	0	0	0	0	0	0	
Subtotal Artificial	2575	7183	1505	1797	6486	4485	1401	478	6781	2410	
Total Even-Aged Management	18039	15109	5822	4398	23708	18111	5841	5170	20871	4035	
Total Regeneration	18039	15109	5822	4398	23708	18111	5841	5170	20871	4035	
Site Preparation											
Mechanical	285	693	756	1212	1719	553	1440	100	1000	0	
Chemical	0	0	0	0	0	355.8	0	0	0	0	
Prescribed burn	0	0	0	0	0	162.2	0	0	0	0	
Total Site Preparation	285	693	756	1212	1719	1071	1440	100	1000	0	
Tending											
Clearing											
manual	0	0	0	0	0	0	0	0	0	0	
chemical - ground	0	0	0	0	0	0	0	0	517	0	
- aerial	4900	4849	1500	1896	4657	2953	1734	434	5201	1384	
mechanical	0	0	0	0	0	0	0	0	0	0	
prescribed burn	700	0	0	0	0	0	0	0	0	0	
Spacing, pre-commercial thinning, improvement cutting											
even-aged	0	0	0	0	0	0	0	0	0	0	
uneven-aged	0	0	0	0	0	0	0	0	0	0	
Cultivation											
0	0	0	0	0	0	0	0	0	0	0	
Total Tending	5600	4849	1500	1896	4657	2953	1734	434	5718	1384	
Protection (Insect Pest Control)											
accelerated harvest											
salvage											
manual protection											
ground insecticide											
aerial insecticide											
Total Protection											

Source:
planned: TMPM Table 4.19, FMPM Table FMP-25
actual: TMPM Table 4.4, FMPM Table RPFO-7, annual reports
2003 actual represents both sub-units combined for the 2003-2004 AWS year

2.7 Harvest Area Successfully Regenerated – Summary of All Forest Units

Moose River

Table 7A provides a summary of the area harvested and assessed for regeneration success for the period from 1990 – 1995 for the Moose River. The table shows that of the 16,676 ha depleted during the 1990-1995 period 13,144 ha or 79% of the area has been surveyed, leaving 21% remaining to be surveyed. Given that area harvested in the 1994 – 1995 AWS would have had its first growing season in 1995, with the ten-year gap in the SGR's for time to free to grow, the program is on track with the remaining 20% scheduled for survey in 2005. Of the 1568 ha declared NSR for the 1990 – 1995 period 154 ha (33%) required tending, 729 ha (47%) required only height growth, and 233 ha (15%) required treatment at normal funding levels. The remaining 91 ha (5%) require treatments above normal levels. Of the 1568 ha declared NSR, 400 ha have received tending treatments.

Silvicultural Objectives (1988 – 1993 MRMU TMP)

The over-all silvicultural objective in the 1988 plan was to establish a systematic and aggressive regeneration plan to maximize silvicultural investments. Emphasis was to be placed on spruce sites that could be regenerated through modified harvest and pine sites that would be receptive to direct seeding. As can be seen from the results from table 7A 88.1% of the area from the 1990 – 1995 period was found to be free growing. Intensive silviculture treatments during the 1993 – 1998 period aided in the success of regeneration.

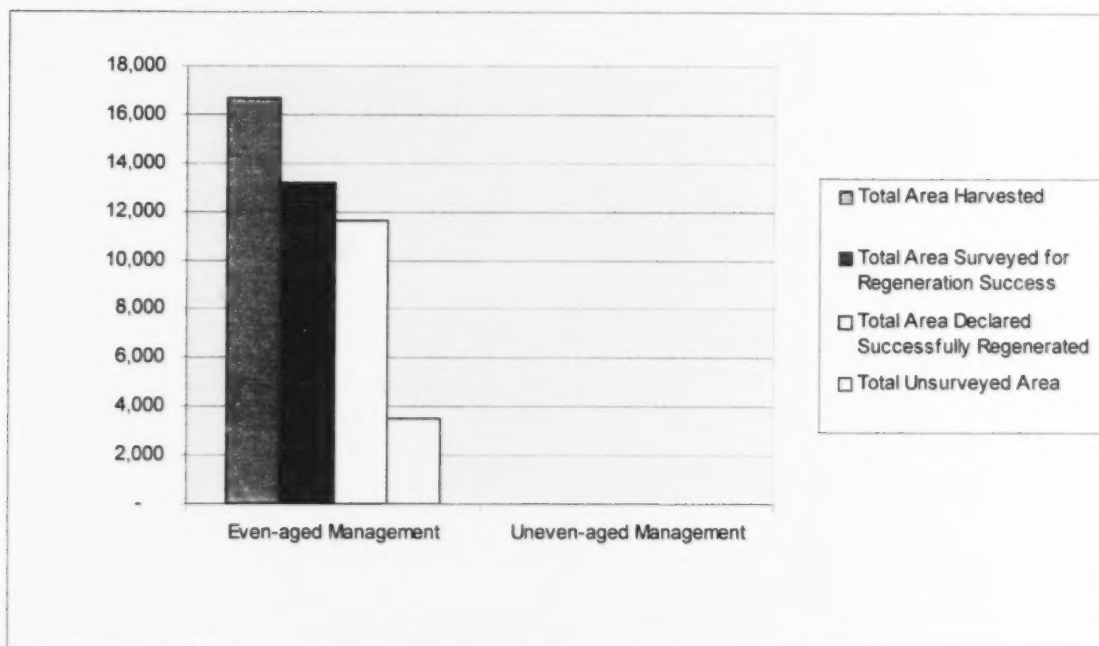
Silvicultural Objectives (1993 – 1998 MRMU TMP)

1. A target for renewal and maintenance was to identify and reclassify backlog areas.

The 1997-1998 annual report showed 15,960 hectares were surveyed during the plan term. From the 1993 to 1998 plan terms the area in barren and scattered or NSR was reduced from 59,346 to 49,051. By 2003 the NSR area had been further reduced to 12,818 ha (includes a significant portion of true barren and scattered).

Moose River Management Unit 1990-1995

	AREA IN HECTARES (All Forest Units Combined)	AREA IN HECTARES (All Forest Units Combined)
	Even-aged Management	Uneven-aged Management
Total Area Harvested	16,676	-
Total Area Surveyed for Regeneration Success	13,144	-
Total Unsurveyed Area	3,532	-
Total Area Declared Successfully Regenerated	11,576	-
Total Area Surveyed Not Successfully Regenerated		
NSR	1,568	-
B&S	-	-
Not Available for Regen. (eg. Roads & landings)	-	-
Other	-	-
Percent of Area Surveyed Declared Successfully Regenerated	88.1%	



Cochrane Management Unit

Table 7B provides a summary of the area harvested from the 1990 – 1995 period and has been subsequently surveyed. 3393 ha (87%) of the area has been harvested has been surveyed, and of that 3004 ha (88.5%) has been declared free-to-grow. 388 ha (10%) of the total harvest area was declared NSR. 491 ha (13%) of the total harvest area remains to be surveyed and is scheduled in the 2005 survey. Area remaining to be surveyed is well within parameters set out in the SGR's. Of the area classified as NSR 198 ha (51%) requires a tending treatment, 72 ha (19%) require treatment at normal cost, 49 ha (13%) require treatment above normal cost, with the remaining 68 ha (17%) requiring only height growth.

Silvicultural Objectives (1988 – 1993 CMU TMP)

The broad renewal objective for the TMP was to balance the natural and artificial regeneration program. If the regular harvest program did not require the available silvicultural dollars the program would be expanded to treat backlog areas.

Silvicultural Objectives (1993 – 1998 CMU TMP)

There were three specific objectives in the 1993 plan, the first of which was harvest, renewal, and maintenance. Targets set out in the TMP with respect to renewal and maintenance include relating to the results shown in Table 7B are:

1. minimize the creation of new backlog areas
2. identify and reclassify backlog areas.

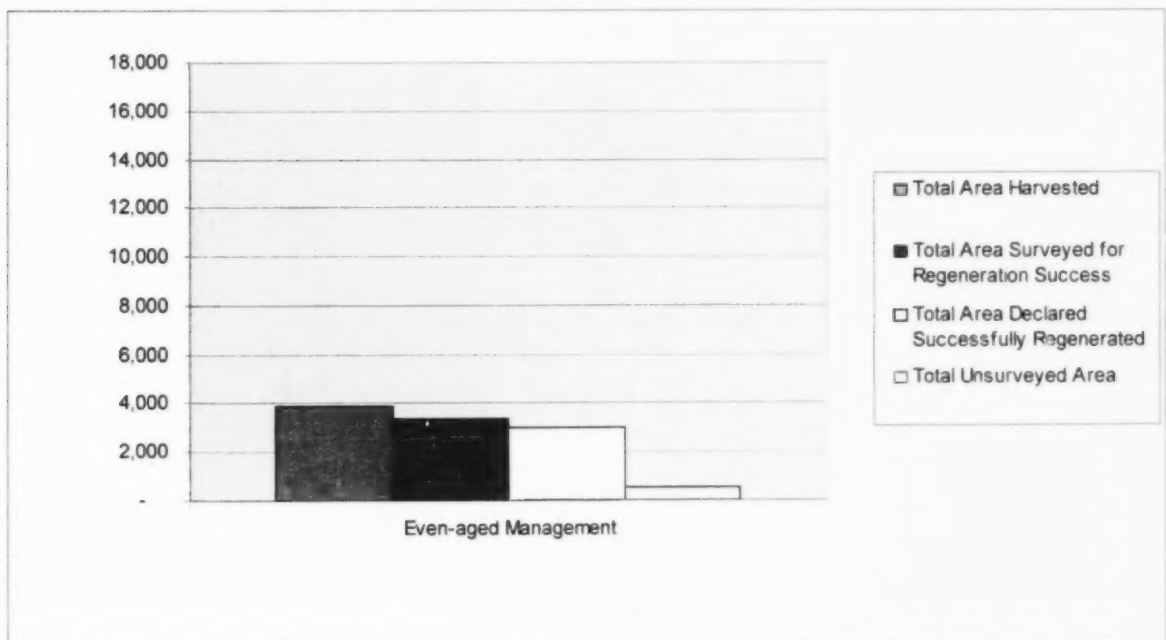
From the results shown in Table 7B there was effort in meeting the targets for identifying and reclassifying backlog areas and minimizing the creation of new backlog areas. From the 1993 to 2003 period the amount of NSR on the unit has been reduced from 33,934 to 7003 hectares.

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Table 7B - Harvested Area Successfully Regenerated - Summary of All Forest Units

Cochrane Moose Management Unit 1990-1995

	AREA IN HECTARES (All Forest Units Combined)	AREA IN HECTARES (All Forest Units Combined)
	Even-aged Management	Uneven-aged Management
Total Area Harvested	3,884	-
Total Area Surveyed for Regeneration Success	3,393	-
Total Unsurveyed Area	491	-
Total Area Declared Successfully Regenerated	3,004	-
Total Area Surveyed Not Successfully Regenerated		
NSR	389	-
B&S	-	-
Not Available for Regen. (eg. Roads & landings)	-	-
Other	-	-
Percent of Area Surveyed Declared Successfully Regenerated	88.5%	



3.0 Summary

In summary, this Forest Management Report shows significant progress toward the achievement of management objectives during the audit period. An integral part of the adaptive management approach is to maintain linkages between plans. The comparison and trend analysis in this report shows that in many cases, objectives were achieved and surpassed.

Appendix B

Roles, Responsibilities, and Qualifications of the Audit Team

Name	Role	Responsibilities	Credentials
Mr. Bruce Byford Arbex Forest Resource Consultants Ltd.	Lead Auditor. Forest Management & Silviculture Auditor.	• Audit Management & coordination. • Liaison with OMNR & Auditee. • Review documentation related to forest management planning and review and inspect silviculture practices • Determination of the sustainability component.	• B.Sc.F. R.P.F. • ISO 14001 Lead Auditor Training. FSC assessor training. • 26 years of consulting experience in Ontario in forest management planning and resource inventory. • Previous work experience on 5 IFA audits and FSC certification assessments.
Mr. Al Stewart Arbex Senior Associate	Wildlife/First Nations Auditor.	• Review & inspect AOC documentation & practices. • First Nations consultation. • Determination of the sustainability component.	• B.Sc. (Agr.) • ISO 14001 Lead Auditor Training. FSC assessor training. • 37 years experience in natural resource management planning, field operations, policy development, auditing and working with First Nation communities. • Previous work experience on 5 IFA audits.

Mr. David Watton Arbex Senior Associate	Forest Management Planning & Public Participation Auditor.	• Review documentation and practices related to forest management planning & public participation. • Determination of the sustainability component.	• B.Sc., M.Sc. • ISO 14001 Lead Auditor Training. • 37 years experience in natural resource management planning, land use planning, field operations, and policy development. • Previous work experience on 4 IFA audits.
Mr. Guy Winterton Arbex Senior Associate	Forest Compliance Auditor.	• Review FMP and related documents to ensure compliance with FMPM and other regulations. • Review field operations for compliance with regulations and guidelines and other documents.	• B.Sc., M.Sc. • ISO 14001 Lead Auditor Training. FSC assessor training. • Previous work experience on 4 IFA audits. • 37 years experience in all aspects of fisheries and wildlife planning, policy development, field operations and natural resource law enforcement.
Mr. Trevor Isherwood Trilac Forestry Services Arbex Associate	Silvicultural, Forest Management and Contractual Compliance Auditor.	• Review and inspect silvicultural practices and related documentation. • Review and inspect documents related to	• B.Sc.F. R.P.F. • Former General Manager of SFL. • 37 years experience in forest management and operations.

		- contractual compliance and socio-economics. - Determination of the sustainability component.	Previous work on 1 IFA audit.
Mr. Nicholas Baggs N.G.B. Forest Management Consulting	Technical Advisor – SFMM.	Analysis of SFMM model outputs and decision criteria and the determination of the sustainability component.	- B.Sc.F. R.P.F. - Previous work experience on IFA audits and FSC certification assessments. - Experience as OMNR Planning Forester & Unit Forest.

Appendix C

Independent Forest Audit Guiding Principles

Summary of the Eight Guiding Principles within the Audit Protocol

There are eight guiding principles contained in the 2005 Draft Independent Forest Audit Process and Protocol, which guide the audit.

Commitment

Commitment is reflected in vision, mission, and policy statements of the Company. Vision and mission statements are intended to provide long-term guidance for the organization. Policy statements reflect how the organization's vision and mission will be achieved. These statements must be reflected in the day-to-day operations of the organization.

Public Participation

The process of sustainable forest planning, implementation, and monitoring is conducted in an open consultative fashion, with input from all members of the planning team, Local Citizen's Committee, native groups and other parties with an interest in the operations of the forest unit.

Forest Management Planning

The forest management planning process involves the input of a number of individuals and groups to describe the current condition of the forest, the values and benefits to be obtained from the forest, the desired condition of the forest in the future, and the best methods to achieve the goal. Certain minimum standards and procedures have been established upon which all management units are evaluated.

Plan Implementation

Verification of the actual results of operations in the field compared to the planned operations is required to be able to assess achievements of the plan objectives and compliance with laws and regulations. In conjunction with the review of operations, the reporting tables are tested to ensure accurate results are reported.

Support System

System support concerns resources and activities needed to support plan implementation so as to achieve the desired objectives. Appropriate control, documentation and reporting procedures must be in place and operational. Planned action should occur at planned times, in planned places and to the planned degree.

Monitoring

The activities and the effects of these activities in achieving management objectives must be regularly measured and assessed. In particular, the indicators of achievement must be assessed and their effectiveness reviewed.

Achievement of Management – Objectives & Forest Sustainability

Periodic assessments of the management of the forest unit operations and the forest unit must be made in order to determine whether forest sustainability and other management objectives are being achieved. This includes comparing the actual values of the predetermined indicators against the planned values and assessing the reasons for any significant deviations.

Contractual Compliance

The licensee must comply with the specific licence requirements.

Appendix D

Glossary of Acronyms Used

List of Acronyms

AHA	Available Harvest Area
ACOP	Annual Compliance Operations Plan
AOC	Area of Concern
AR	Annual Report
AWS	Annual Work Schedule
B&S	Barren and Scattered
Bf	Balsam Fir
B.Sc.F.	Bachelor of Science in Forestry
Bw	White Birch
CFSA	Crown Forest Sustainability Act
CLAAG	Careful logging around advanced growth
CMU	Cochrane Management Unit
CMRMU	Cochrane Moose River Management Unit
DM	District Manager
EMS	Environmental Management System
FIM	Forest Information Manual
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual
FMNCP	Forest Management Native Consultation Program
FOCIS	Forest Operations Compliance Information System
FOIP	Forest Operations Information Program
FRI	Forest Resource Inventory
FOP	Forest Operations Prescription
FSC	Forest Stewardship Council
FTG	Free-to-Grow
FU	Forest Unit
GIS	Geographic Information System
GPS	Global Positioning System
HA	Hectares
HARP	Harvesting with Regeneration Protection
IFA	Independent Forest Audit
IFAPP	Independent Forest Audit Process and Protocol
ISO	International Standards Organization
LCC	Local Citizens Committee
m ³	Cubic Metres
MAD	Maximum Allowable Depletion
MRMU	Moose River Management Unit
NIC	Not in Compliance
NRVIS	Natural Resource Values Information System
NSR	Not Satisfactorily Regenerated
OMNR	Ontario Ministry of Natural Resources
Pj	Jack Pine
Po	Poplar
R.P.F.	Registered Professional Forester
RPFO	Report of Past Forest Operations
RSA	Resource Stewardship Agreement
Sb	Black spruce

SEIM	Socio-Economic Impact Modeling
SEV	Statement of Environmental Value
SFL	Sustainable Forest Licence
SFMM	Sustainable Forest Management Model
SGR's	Silvicultural Ground Rules
SMA	Selected Management Alternative
SPF	Spruce Pine Fir
Sw	White Spruce

Appendix E

Summary of Input to the Audit Process



Appendix E - Summary of Input to the Audit Process

A major focus of the audit was to gain an understanding of how forest management activities on the CMRMU affected users of the forest.

The following briefly summarizes the contacts and the issues raised. All these contacts and issues are fully discussed throughout the body of the report.

General Public /Other Stakeholders

Notices describing the audit process, and soliciting input, and providing audit dates and contact coordinates of the audit firm were distributed by the following means:

- local newspapers;
- individual letters sent to First Nation Chiefs and LCC members;
- letters sent to a randomly selected 35 percent of the individuals on the CMRMU mailing lists.

Telephone contacts were made with representative stakeholders and interviews were conducted as necessary or on request.

The principal issues raised with the auditor included;

- generally poor OMNR management of the Forest.
- confusion with respect to who was responsible for forest management on the CMRMU.
- appropriateness of OMNR guidelines on the CMRMU landscape and economic implications of implementing those guidelines.
- slash management.

Local Citizen's Committee

All Cochrane LCC members received individual letters inviting participation and the opportunity for a personal interview. A LCC member attended the three days of the field audit including the Opening and Closing Meetings.

Principal issues that were identified included:

- Unrealistic and largely unobtainable responsibilities for the LCC.
- The complex FMP planning process.
- The onerous workload responsibility for the LCC (for four Forest Management Units).
- Recruitment and retention of members.

Native Communities

Invitations to participate in the audit process were sent to the Taykwa Tagamou, Wahgoshig and Moose Cree First Nations. The auditors interviewed representatives from Taykwa and the Moose Cree First Nations.

Principal issues that were identified included:

- Past poor relations with the Tembec and OMNR which have significantly improved.
- Enhanced economic opportunities for First Nations in forestry.
- Jurisdiction issues.
- Financial and technical capacity to participate effectively in forest management planning.

Forest Industry Licencees

Interviews were conducted with licensees on the CMRMU.

Principal issues that were identified included:

- Wood utilization.
- Concerns about the appropriateness of the marten and NDPEG guidelines on the IFN landscape and economic implications of implementing those guidelines.
- Increasing frequency of new government forest management guidelines and continual modification of existing guidelines.

Ontario Ministry of Natural Resources

The auditor met with OMNR staff at the preliminary visit and the 5 days of the field audit. Contacts included all levels of the organization from field technicians to the District Manager for the Cochrane District. Regional and Forest Management Branch OMNR staff participated in the field audit. The results of these numerous discussions are reflected throughout this audit report.



